Chapter 8

Resource Analysis

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Chapter 8 Resource Analysis

This chapter discusses the resources that the Nebraska Department of Transportation (NDOT) analyzes in its National Environmental Policy Act (NEPA) documentation. While this chapter introduces all resources, it does not provide exhaustive information on each. Instead, it provides an overview and directs the reader to detailed guidance where available. In accordance with NEPA and the varied legislation under NEPA's broad umbrella, NDOT reviews its transportation projects for impacts on the human, physical, and natural environment. Specifically, environmental reviews involve identifying and describing the study area; identifying resources within the study area; analyzing impacts; coordinating with resource agencies; taking measures to avoid, minimize, and mitigate impacts; documenting (within the NEPA documentation itself and possibly as stand-alone technical studies) the environmental analysis; and demonstrating compliance with applicable laws, regulations, and guidance. These considerations are discussed for each resource presented in this chapter.

For the purposes of carrying out its responsibilities under NEPA Assignment, NDOT has assumed responsibility as the lead agency for the federal environmental laws per NDOT's Memoranda of Understanding (MOU) with the Federal Highway Administration (FHWA). As part of NEPA Assignment, NDOT assumes FHWA's responsibilities for environmental review and documentation, interagency and federal resource agency consultation and coordination, and regulatory compliance for all assigned projects. For more detail on NEPA Assignment, see Chapter 1, Overview.

8.1 General Guidance

Resources discussed in this chapter may be evaluated in categorical exclusions (CE); however, some are unique to environmental assessments (EA) and environmental impact statements (EIS). Those resources evaluated in all classes of action may be evaluated in more depth for EAs and EISs. In addition, CEs and EAs typically evaluate the impacts of one alternative, and EISs evaluate and compare the effects of each alternative carried forward for detailed analysis.

NDOT has guidance specific to completing CEs, the *Nebraska Categorical Exclusion Guidance*, that addresses resource evaluation for CEs.

8.1.1 Project Study Area

The general study area for a proposed Project (Project Study Area) is the area necessary to identify and address environmental concerns associated with all alternatives that are evaluated in detail. The Project Study Area is larger than the preliminary impact area, discussed in Section 8.1.2, and it may need to be adjusted if new alternatives are brought forward during the NEPA phase. The Project Study Area should not be confused with the study areas of individual resources, which vary and are discussed in Sections 8.2 through 8.22.

Study areas or analyses could be reduced or expanded by scoping and early coordination activities. Scoping is the process through which NDOT solicits input from agencies, stakeholders, and the public regarding the project purpose and need, the range of alternatives, and the scope and significance of the issues to be addressed in the NEPA documentation.

The Project Study Area may extend beyond the initial project boundaries to include any areas affected by known construction activities. For example, the impact of detour construction on the community, properties protected under Section 106 of the National Historic Preservation Act of 1966 (NHPA), or threatened and endangered species.

8.1.2 Preliminary Impact Area

Direct effects, defined in Section 8.1.3, are often quantified based on the project's limits of construction or areas of disturbance; however, during the NEPA process, precise limits of construction or disturbance may not be available. As such, the project team should establish a preliminary impact area for evaluation of impacts for each alternative evaluated in detail based on preliminary limits of construction, other areas of disturbance (including improvements on detour routes or resource mitigation areas), and professional judgment. Indirect effects are considered for the same resources evaluated for direct effects but occur later in time or farther away. Consequently, with more subjectivity and uncertainty of indirect impacts, a lesser depth of analysis is used for impact estimation.

NDOT typically does not designate material source sites (commonly referred to as borrow sites) or staging areas as part of the project. If these areas are designated by the project sponsor, they should be included in the preliminary impact area. The preliminary impact area should be a conservative (but not excessive) estimate of the project's area of impact in order to assess all anticipated project impacts.

8.1.3 Types of Impacts

NEPA requires analysis of a project's reasonably foreseeable effects on the quality of the human environment (42 United States Code [USC] 4336). The terms "effect" and "impact" are used interchangeably. When analyzing impacts on a particular resource, it is important to consider the following:

- Reasonably foreseeable environmental effects are those effects caused by the proposed project "at hand" and within the agency's scope of authority (*Seven County Infrastructure Coalition v. Eagle County, Colorado*, 605 U.S. ___, 145 S.Ct. 1497 (May 29, 2025) [*Seven County*]).
- Direct effects include those that may occur at the same time and place as the proposed action or alternatives. Right-of-way (ROW) acquisition is the most tangible example of this.
- Indirect effects include those that "might extend outside the geographic territory of the project or might materialize later in time" (*Seven County*). Indirect effects may include growth-related effects, such as changes in population density or changes in land use in response to the proposed action, or "run-off into a river that flows many miles from a project and affects fish populations elsewhere" (*Seven County*).
- Construction impacts are specific to construction activities and are temporary in nature. They commonly occur outside of the permanent project footprint and are often tied to contractor access accommodations and traffic controls.
- Effects caused by "potential future actions or projects" or actions and projects that are "geographically distinct" from the proposed project are not considered "reasonably foreseeable" for purposes of NEPA (*Seven County*). "NEPA requires 'a reasonably close causal relationship' between the environmental effect and the alleged cause" (*Seven County*).

8.1.4 Environmental Resources Not in the Project Study Area

In the process of conducting an EA or EIS, not all resources need to be analyzed in detail. Some resources can be summarily dismissed at the beginning of an EA or EIS because they do not exist in the Project Study Area or would not be impacted by the proposed project.

This dismissal should be based on a thorough understanding of the project, its potential impacts, and the characteristics of the Project Study Area. Documentation must include the reasons for dismissing any resources to provide transparency and ensure that all potential impacts have been considered.

The dismissal of resources not present or impacted in the Project Study Area allows for a more focused and efficient analysis of the resources that are likely to be affected. This approach aligns with NDOT's commitment to conducting thorough and efficient environmental reviews.

For more information on the process of identifying and analyzing impacts, coordinating with resource agencies, and documenting the environmental analysis, see the respective sections in this chapter.

8.2 Land Use

Current and future land use patterns, and future trends are key considerations in transportation planning, design, and construction. Land use and transportation are closely linked. Land use decisions can affect mobility, accessibility, and safety as well as the environment and quality of life (American Association of State Highway and Transportation Officials [AASHTO] 2021). Transportation projects should strive to be consistent with the intent of local and regional land use plans while meeting the current and future needs of the travelling public. The potential effects of a proposed action are addressed in the NEPA analysis.

8.2.1 Study Area

The land use study area is typically consistent with the Project Study Area. Generally, the land use study area for a project with a single alternative is confined to the length of the project plus up to 0.5 mile beyond the project termini. The study area also extends 0.25 mile on either side of the proposed alignment. If additional alternatives are considered, the study area would be expanded accordingly to encompass all alternatives being evaluated.

8.2.2 Resource Identification

Land use identification can be performed using desktop resources, but often requires communication with local planning agencies to obtain comprehensive land use plans and other necessary land use information, including zoning plans. Data in map form and geographic information system (GIS) files are useful in identifying and delineating distinct land use and zoning boundaries. Communication may be warranted with additional entities involved in land use management, such as the US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), local Natural Resources Districts, and utility companies, to identify past, present, and future impacts and trends.

8.2.3 Analysis

A project's potential impact on land use and review of whether the project is consistent with area plans considers the following:

- Current and future projected land use within and near the study area
- Land development projects underway, in planning, or under consideration for the study area

The impacts of the project are evaluated for the following:

- The project's potential to cause changes in land use, including temporary changes
- Consistency with local or regional land use plans and transportation plans

8.2.4 Resource Agency Coordination

Environmental resource agency coordination is not typically necessary for land use analysis. FHWA does not issue or enforce land use environmental regulations; however, land use and the project's potential impacts on land use are considered and documented in the NEPA analysis. NDOT will coordinate with entities involved with land development, such as municipalities and local governments, tribal governments, Metropolitan Planning Organizations (MPO), and Natural Resources Districts, when necessary, to determine impacts from the project.

8.2.5 Avoidance, Minimization, and Mitigation

If a project has the potential to affect current or future land use, or is inconsistent with local or regional planning documents, NDOT will consider avoidance, minimization, and mitigation measures. Potential measures include alternative alignments, access modifications, elevated or depressed roadways, berms, and noise barriers.

8.2.6 Documentation

The following land use evaluation factors should be discussed in the NEPA documentation:

- The general character of land use in, and adjacent to, the study area, including agricultural, residential, commercial, or industrial uses and locations of community services
- Any planned land use developments for the study area
- Consistency or inconsistency of the project with existing local or regional land use plans
- Any avoidance, minimization, and mitigation commitments

8.2.7 Laws, Regulations, and Guidance

FHWA does not issue or enforce land use regulations; however, FHWA and other agencies have issued the following guidance applicable to land use analysis and documentation in the NEPA process:

- FHWA, October 30, 1987, *Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents*
- FHWA, March 2010, *Interim Guidance on the Application of Travel and Land Use Forecasting in NEPA*
- FHWA, June 2018, *Community Impact Assessment: A Quick Reference for Transportation*
- National Cooperative Highway Research Program *Report 456, Guidebook for Assessing the Social and Economic Effects of Transportation Projects*

8.3 Farmland

The Farmland Protection Policy Act of 1981 (FPPA; 7 USC 4201 et seq.) was enacted to minimize unnecessary conversion of farmland to other uses as a result of federally funded projects. To that end, federal agencies are required to evaluate the impacts of federally funded projects that may involve converting prime or unique farmlands (as defined in the FPPA, Section 4201(c)(1)) to non-agricultural uses. In addition, federal agencies are required to consider alternative actions that would lessen the adverse effects of the land conversion. The FPPA also states that federal programs should be compatible with state and local policies or programs that protect farmland. **In accordance with the FPPA, relevant farmland includes land with soils that are prime, unique, or of statewide or local importance.** State transportation construction projects that involve federal-aid funding are subject to

FPPA requirements. Projects without federal funding assistance are not evaluated under the FPPA. Federal permitting, such as Section 404 of the Clean Water Act (33 USC 1251 et seq.), is not subject to the FPPA. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forestland, pastureland, cropland, or other land, but not water or urban land. The FPPA Manual and 7 Code of Federal Regulations (CFR) 658.2(a) further define lands subject to the FPPA.

8.3.1 Study Area

The study area for farmland is typically consistent with a project's preliminary impact area and ROW acquisition (if known), including any easements, that would irreversibly convert (directly or indirectly) the property in easement from farmland to non-agricultural use.

8.3.2 Resource Identification

Resource identification can be performed using desktop resources and generally does not require a field investigation. Typical desktop resources used to perform resource analysis are as follows:

- USDA NRCS soil survey data
- US Geological Survey topographical maps
- US Census Bureau maps of urban areas
- USDA Census of Agriculture data
- USDA NRCS color aerial photographs
- Web-based aerial mapping sources, such as Google Earth
- Comprehensive plans for local communities (to determine land committed to urban development or water storage)

8.3.3 Analysis

Farmland impacts are determined in order to identify the need for coordination with NRCS Nebraska and the potential for subsequent mitigation. If it is determined that a project will acquire or indirectly lead to the conversion of farmland, the size of the impact must be calculated. The impact area includes acquisition of ROW or permanent easement where agricultural activity would no longer be allowed. For all non-urban projects reviewed as EISs or EAs, an NRCS Farmland Conversion Impact Rating form (NRCS-CPA-106 or AD-1006) is completed to determine the project's impact rating. For non-urban projects reviewed as categorical exclusions, the NRCS form will be completed if the project results in conversion of more than 1 acre of farmland per mile. For purposes of the FPPA, NDOT considers all impacted farmland to be potentially prime or unique unless determined otherwise by the NRCS. A project must score more than 60 points in Part VI of the NRCS-CPA-106 or AD-1006 form to be given further consideration for protection by NRCS. A score of less than 60 points in Part VI would make it impossible for NRCS to give the site a total score above 160 points, which is the NRCS threshold for recommending impact avoidance or mitigation.

8.3.4 Resource Agency Coordination

In accordance with NDOT and NRCS Nebraska practices, the NRCS-CPA-106 or AD-1006 form should be sent to NRCS if the Part VI score is greater than 60 points or the project is being evaluated as an EA or EIS. As indicated in regulation (7 CFR 658.4), NDOT transmits the completed NRCS-CPA-106 or AD-1006 form to NRCS Nebraska for NRCS to determine the relative value of the impacted farmland. NRCS Nebraska will then determine whether the site needs to be protected as farmland.

8.3.5 Avoidance, Minimization, and Mitigation

NDOT may avoid or minimize impacts on farmland in much the same way it would wetlands and water resources, by minimizing the project footprint. When a project scores more than 160 points for the relative value of the impacted farmland, USDA will recommend one or more of the following:

- Use of land that is not farmland or use of existing structures
- Alternative sites, locations, and designs that would serve the proposed purpose but convert either fewer acres of farmland or other farmland with a lower relative value
- Special siting requirements of the proposed project at the originally selected site, weighed in relation to the extent to which an alternative site fails to satisfy the same special siting requirements.

8.3.6 Documentation

NDOT projects with the potential to convert important farmland to non-agricultural use are documented with the NRCS-CPA-106 or AD-1006 form. If the total score of Part VI is below 60, the form is placed in the project file. If the total score of Part VI is above 60, coordination with NRCS Nebraska is required and documented accordingly. The NEPA documentation should include a general discussion of project activities that may impact farming or ranching operations, such as closing or consolidating drives or access points, and project activities that would impact center pivot or ditch irrigation practices or other farm improvements.

8.3.7 Laws, Regulations, and Guidance

Farmland is governed by the following laws, regulations, and guidance:

- 7 CFR 657, Prime and Unique Farmlands
- 7 CFR 658, Farmland Protection Policy Act
- 7 USC 4201 et seq., Farmland Protection Policy Act of 1981
- USDA, March 22, 1983, USDA Environmental Compliance Land Use Policy, Departmental Regulation 9500-3
- USDA NRCS, 2013, Part 523 – Farmland Protection Policy Act Manual
- NDOT Farmland Protection Policy Act Guidance

8.4 Right-of-Way and Relocations

ROW is a general term denoting land or property acquired for, or devoted to, a public use. If ROW on which to build or maintain a public project is not already owned, it must be acquired by purchase, donation, or eminent domain. Fee simple ownership, permanent easements, and temporary easements are all means of conveying ROW. Acquisition of property for ROW may require relocations of residences or businesses, or both. Procedures for acquiring ROW are contained in the NDOT *Right-of-Way Manual*, which is structured after the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 4601 et seq.) and the Nebraska Relocation Assistance Act (Nebraska Revised Statutes [Neb. Rev. Stat.] Section 76-1214 et seq.). An acquisition program would also be in accordance with Title VI of the Civil Rights Act of 1964 (42 USC 2000d). State and Local Public Agency (LPA) projects with any federal funding in any phase of the project must comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act when ROW is acquired.

NDOT policy states that "all persons, families, businesses and farms who are displaced from their homes or their locations as a result of the acquisition of real property for public purposes receive fair, uniform and equitable treatment and that such persons shall not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole" (NDOT 2025).

8.4.1 Study Area

The study area for ROW and relocations can vary depending on the need for additional ROW for a project. If no ROW or easement acquisition is required, the Project Study Area would apply for the project. If the proposed acquisition would be adjacent to existing ROW, the study area would be expanded to include the proposed ROW or easement acquisition. If residences or businesses would need to be relocated, the study area would be expanded to include the affected area. Additionally, the study area should include an area in the affected neighborhood where comparable replacement housing, businesses, or property for affected housing or businesses would be available for purchase. If comparable replacement housing, businesses, or property cannot be identified in the affected neighborhood, the study area would be expanded to include nearby neighborhoods, as applicable. Any relocations outside of the affected or nearby neighborhoods would be noted, if applicable, in the NEPA documentation.

8.4.2 Resource Identification

The need to acquire ROW is identified on a Highway Improvement Programming Request Form (NDOT-73; for NDOT-administered projects in Nebraska) or a Local Public Agency Project Programming Request Form (NDOT-530; for LPA projects), the Probable Class of NEPA Action Form (NDOT-53), and the Plan-in-Hand Report. As design of the project continues, further details of ROW acquisition are identified on ROW plans.

8.4.3 Analysis

The ROW and relocation information should be summarized in the NEPA documentation in sufficient detail to adequately explain any required relocations, including anticipated issues and proposed solutions for all alternatives, as described below:

- The amount of ROW or easement (permanent or temporary) to be acquired for the project should be determined from ROW plans (if available) or estimated from preliminary design plans. Both ROW and permanent easement acquisition would permanently impact land use and may impact other resources. Temporary easements would impact land use and possibly other resources temporarily during construction. When construction is complete, temporary easements would revert back to the original landowner.
- Impacts on major property improvements (for example, residential or business structures, functional garages or outbuildings, or other features, such as parking) that would change the functional use of the property should be identified. Modifications to, or relocations of, major property improvements that would result in adverse effects on the continued functionality of the property (that is, access changes, access restrictions, or loss of parking) should be described, as should potential land use changes that may occur as a result of the project.
- The estimated number of relocations should be described, including whether the displacements would be residential or non-residential. The structure(s) affected (for example, home, business, farm/ranch, or apartment/rental property) and the general disposition of the structure (that is, occupied or vacant, functional or dilapidated) should also be described. If the structure is occupied, the family characteristics (for example, handicapped, elderly, large family, and owner/tenant status) should be described.

- If the project involves a residential displacement, the adequacy of replacement housing in the area should be described. A comparison of available decent, safe, and sanitary housing in the area with the housing needs of the displacees should be included. The comparison should include price ranges, sizes (that is, number of bedrooms), and occupancy status (that is, owner or tenant). If the existing housing inventory is insufficient, does not meet relocation standards, or is not within the financial capability of the displacees, then the measures to be taken to find replacement housing should be discussed. A commitment to last resort housing should be included when sufficient comparable replacement housing may not be available.
- If the project involves a non-residential displacement, the type or activity of the business, institution, or farm and the availability of replacement sites in the area should be described. When an adequate supply of replacement business sites is not expected to be available, the impacts of displacing the businesses should be considered and addressed.
- Any divisive or disruptive effect that the displacements could have on the community, such as separation of residences from community facilities or removal of a business that is critical to the community, should be identified. A project sponsor should also consider whether there is substantial controversy (do the people who would be relocated object?), and whether there is a history of previous relocations in the area.

Specific guidance on relocations is provided in the NDOT *Right-of-Way Manual*, Section 7.11.

If the proposed ROW acquisition is an existing or future park or recreation land, wildlife or waterfowl refuge, or historic property, documentation in accordance with Section 4(f) of the US Department of Transportation (USDOT) Act of 1966 must be prepared (see Section 8.10, Section 4(f)). Other resources potentially affected by ROW acquisition include farmland (see Section 8.3, Farmland); community resources (see Section 8.5, Community Impact Assessment); historic resources protected under Section 106 of the NHPA (see Section 8.8, Historic Properties); and recreation properties funded under the Land and Water Conservation Fund (LWCF; see Section 8.11, Section 6(f)).

If a project would result in property impacts, language in the project's EA availability notice should address the public notification requirements for this resource. See Chapter 9, Public Involvement Procedures, provides additional information.

8.4.4 Resource Agency Coordination

Resource agency coordination is required when ROW acquisition would affect other resources, such as Section 4(f) resources, wetlands, floodplains, historic resources, or other protected properties. Coordination with NRCS Nebraska may be required if the ROW or permanent easement would take farmland out of protection (see Section 8.3, Farmland).

8.4.5 Avoidance, Minimization, and Mitigation

No standard avoidance, minimization, or mitigation measures have been identified specifically for ROW acquisition or relocations other than those measures identified in the NDOT *Right-of-Way Manual*, or those applicable to other affected resources (that is, Section 4(f) resources, farmland, community impacts, historic resources, or recreation properties funded under the LWCF).

8.4.6 Documentation

If relocations would be required, a relocation study would be completed by the NDOT Right-of-Way Division. Preparation of the relocation study begins at the conceptual stage of the route planning for the project to identify anticipated problems and proposed solutions. The relocation study is refined as

the design process progresses for the project. The relocation study would be summarized in the NEPA documentation.

For LPA projects, the project sponsor prepares a relocation study when applicable, in accordance with NDOT ROW guidance. The NDOT Right-of-Way Division reviews and approves the study. The LPA relocation study would be summarized in the NEPA documentation.

8.4.7 Laws, Regulations, and Guidance

If ROW acquisition is required, the following laws, regulations, and guidance should be referenced:

- 49 CFR 24, Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs
- 42 USC 4601 et seq., Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
- FHWA, October 30, 1987, *Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents*
- NDOT, April 2025, *Right-of-Way Manual*
- Neb. Rev. Stat. Section 76-1214 et seq., Nebraska Relocation Assistance Act

8.5 Community Impact Assessment

NEPA requires federal agencies, and state and local agencies receiving federal funding, to assess the effects of a proposed project on the human environment and its relationship to people within the environment. NDOT uses the community impact assessment (CIA) process outlined in the NDOT *Community Impact Assessment Guidance* (NDOT CIA Guidance). Because transportation provides mobility and access for the daily activities of a community, major changes to the transportation system have the potential to affect various characteristics of a community, including population, housing, income and employment, businesses and tax base, community resources (public services and facilities), and community cohesion. Measures identified to mitigate for community impacts should reflect the needs and preferences of affected populations to the extent practicable.

8.5.1 Study Area

The CIA study area should include the geographic area encompassing the project alternatives, and the communities and community resources that may be affected by the project. The CIA study area starts with the location(s) of the proposed improvements for all alternatives considered in the NEPA documentation as well as any detours or other areas specifically identified for the project. However, additional non-contiguous areas, or larger geographies, may be included in the CIA study area depending on local community characteristics, effects identified for the project alternatives, and other data collected during the baseline analysis. Additionally, local knowledge and input from the community may be used to help refine the CIA study area, and a site visit or community engagement may provide additional insights. The CIA study area boundaries are usually delineated using US Census Bureau geometries, such as block groups or census tracts.

8.5.2 Resource Identification

The CIA includes the assessment of population (including demographic analysis consistent with Title VI of the Civil Rights Act of 1964 [race, color, national origin, and limited English proficiency]), housing, income and employment, businesses and tax base, community resources (public services and facilities), and community cohesion. The analyst reviews community characteristics to determine

which areas to analyze for the project based on the scale of the project and its likelihood to affect various community resources.

To ensure that the collected community profile data accurately reflects the characteristics of the community, site visits and in-person community engagement should be conducted, when appropriate, to verify and supplement the desktop data, better assess the community cohesion, identify protected Title VI populations, and understand the concerns of the community members. The NDOT Communications and Public Policy Division will determine the appropriate level of public outreach depending on the extent of project impacts. This proactive engagement can help build durable community relationships that can be important later in project development.

8.5.3 Analysis

When assessing the community impacts of a proposed federal action, the level of detail of analysis should be in proportion to the significance of the impacts. The level of analysis on a given project will also depend on the level of NEPA documentation that is being considered. For example, a limited level of analysis may be conducted for a CE, but an increased level of analysis, including a standalone memo, may be conducted for an EA or an EIS.

After describing the existing conditions for each of the community characteristics in the NDOT CIA Guidance, these data should be tabulated and mapped, which will serve as the baseline data for the subsequent impact analysis. As potential community impacts are identified, the environmental analyst would identify measures to avoid, minimize, or mitigate those impacts that would adversely affect communities and populations as a whole. Because transportation projects provide a benefit (for example, a safer bridge, reduced travel times, or an additional mode choice), a project's benefit(s) to community characteristics and the recipients of those benefits, both with and without the project, are to be considered.

8.5.4 Resource Agency Coordination

Coordination must occur throughout the CIA if potential impacts are evident. To properly assess impacts and their severity, and to identify mitigation measures, if necessary, NDOT and the project team should coordinate with local and regional government entities if there are impacts on resources within their jurisdiction (for example, public and community facilities, parking, access, and businesses).

8.5.5 Avoidance, Minimization, and Mitigation

After potential community impacts are identified, the measures to avoid, minimize, or mitigate those impacts that would adversely affect communities and populations as a whole, are described for each of the community characteristics in the NDOT CIA Guidance. Such measures may include construction phasing to maintain access to adjacent properties or community facilities, coordination with local jurisdictions and emergency response providers to maintain access and safe travel routes during construction, and specific public outreach and involvement measures.

8.5.6 Documentation

The items that should be considered in the CIA and documentation for a project are listed in the NDOT CIA Guidance**.** The amount of detail and documentation should be commensurate with the potential for, types of, and severity of impacts. Generally, tables and maps documenting both baseline data and potential impacts are essential for CIAs.

During the site visit, if conducted, photographic documentation of the study area should be collected, particularly photographs of key project areas or community resources. Such photographs can be referenced during subsequent analysis or can be included in NEPA documentation.

The CIA and documentation should describe any steps taken during design, or that would be required during construction or operation, to avoid, minimize, or mitigate the effects of the project on population, housing, income and employment, businesses and tax base, community resources (public services and facilities), and community cohesion. Documentation details and organization are provided in the NDOT CIA Guidance.

Public and community engagement will be sought out and documented as part of the overall NEPA decision. The results of public outreach, including those events conducted with communities and small groups, will be documented in the overall project-specific public involvement Report and NEPA document, in accordance with the NDOT CIA Guidance.

8.5.7 Laws, Regulations, and Guidance

The following resources provide additional guidance on the preparation of CIAs:

- FHWA, June 2018, *Community Impact Assessment: A Quick Reference for Transportation*
- NDOT, 2019, Public Involvement Procedures (Chapter 9 of this *Environmental Procedures Manual* [Manual])
- NDOT, 2024, *Americans with Disabilities Act (ADA) Self-Evaluation and Transition Plan*
- NDOT, 2024, *Limited English Proficiency Plan*
- NDOT, 2025, *Title VI Implementation Plan*

8.6 Transportation

Transportation resources include the entire transportation network in Nebraska, including roadway, transit, rail, aviation, and pedestrian and bicycle facilities. The physical roadway network includes interstates, federal and state highways, county and local roads, and bridges. Freight is the movement of goods to, from, and through the state, transported on the roadway system or rail, or both. The transit system includes any mass transportation service, including bus, shuttle, and passenger rail, and associated transit stations, stops, and parking facilities, as well as potential future systems such as streetcar, light rail, and commuter rail. Aviation resources include public and private airports and airport-related facilities. Pedestrians are most commonly accommodated on sidewalks, shared use paths, or intersection crossing treatments. Bicycle accommodation can take a number of forms including on-street facilities (for example, shared lanes, wide curb lanes, paved shoulder, bike lanes) and off-street shared use paths. Other bicycle amenities may include lockers, standard racks, and transit-vehicle-mounted racks.

8.6.1 Study Area

The study area for transportation resources is often larger than most resource study areas and can vary depending on the presence or absence of the different sub-resources in the affected environment, or as part of the transportation alternatives being considered for a project. For a roadway, freight, transit, rail, or pedestrian and bicycle path improvement project along or adjacent to an existing alignment, the study area is approximately 0.25 mile wide on either side of the project alignment, plus 0.5 mile on either end of the project. However, roadway and/or rail modifications or closures may necessitate access considerations for facilities that lie outside of the standard study area. Additionally,

airports within 10 miles of the proposed project should be considered for potential impacts and the need for coordination. The standard study area will also account for any detour route.

8.6.2 Resource Identification

Typical desktop resources used to identify existing and planned transportation facilities are as follows:

- Web-based aerial mapping sources, such as Google Earth
- Information from the county or local municipality responsible for a transportation system
- Information from the local department or agency responsible for community bike trails
- Comprehensive plans for local communities (future, planned resources must be considered)
- Long-range transportation plans and transportation improvement plans from MPOs
- Topologically Integrated Geographic Encoding and Referencing (TIGER) files
- Private railroad websites
- Information from the NDOT Division of Aeronautics
- Airport websites
- Great Plains Trail Network – Lincoln Area
- Omaha Metropolitan Area Bicycle Map
- TrailLink – Rails-to-Trails Conservancy

Field studies are generally not necessary to determine the presence or absence of transportation facilities; however, field reconnaissance can be helpful in identifying traffic circulation and access patterns. Additionally, coordination with city and county planners may be helpful in learning about newly constructed facilities, or those that are planned and funded for near-term construction. The existing and long-range planning horizon conditions of no action are important for establishing the need for a project.

MPOs and county and city transportation departments can typically provide a variety of traffic and transportation data, such as traffic circulation and congestion information, future traffic projections, mode share (pedestrian, bicycle, transit, automobile), and connectivity.

8.6.2.1 Facility Characteristics

The existing characteristics of transportation facilities in the study area may be described using the following information, depending on the availability of data:

- Type (for example, freeways, highways, major arterials or throughways, and local roadways) and location of transportation facilities serving the study area and region
- Type, location, and availability of public transportation services (for example, bus and rail)
- Type and location of public and private airports
- Type and location of pedestrian and bicycle facilities
- Cross sections and configuration of transportation facilities

8.6.2.2 Access and Circulation

The existing accessibility of, and travel and circulation patterns in, the study area may be described using the following information, depending on the availability of data:

- Access points, spacing, restrictions, and traffic control
- Traffic patterns, level of service, and safety
- Neighborhood safety issues related to emergency access
- Low-mobility status (for example, elderly persons and persons with disabilities)
- Circulation and access (for example, frequently traveled routes and commuting patterns)
- Household vehicle ownership (especially households with no vehicle)

8.6.3 Analysis

In completing an environmental analysis, NDOT identifies potential project impacts on existing and planned transportation facilities. Analysis of transportation impacts may require coordination with design and traffic engineers to get an understanding of the traffic circulation and access impacts. Where the project would convert, sever, or impede access to an existing facility, NDOT would evaluate and apply avoidance, minimization, and mitigation measures, as discussed in Section 8.6.5. Where new pedestrian or bicycle facilities are included in a highway project, the NEPA documentation should explain the basis for providing the facilities and should demonstrate the facilities' compliance with the Americans with Disabilities Act of 1990.

8.6.3.1 Facility Characteristics

Potential impacts on facility characteristics should be considered and described, as appropriate. The following questions should guide the analysis of facility characteristic impacts:

- Would public transportation routes be altered by the project?
- Would passenger rail and transit infrastructure be affected?
- Would the number of railroad crossings be affected by the project? This may include a change in the number of rail crossings, thereby affecting train-related delay for vehicular traffic on roadways, and also for potential delays to freight traffic and passenger rail traffic.
- Would the project result in effects on traffic safety or overall public safety? This could include a change in rail crossing exposure at at-grade rail crossings.

8.6.3.2 Access and Circulation

Potential impacts on access and circulation that would result from construction and operation of the proposed project should be considered and described, as appropriate. The following questions should guide the analysis of access and circulation impacts:

- Would roadway capacity and level of service change?
- Would passenger rail and transit time of travel, or ridership be affected?
- Would the project result in traffic circulation changes? This may include a change in the delays currently experienced or a change to vehicular access or frequently traveled routes.
- Would pedestrian or bicycle travel patterns or access to pedestrian and bicycle facilities be altered by the project?

- Would access to public transportation be altered by the project? This may include construction detours or closures.
- Would safe routes to school be altered by the project?
- Would transportation services for low-mobility populations be affected by the project?
- Would emergency response times be affected by the project?

8.6.3.3 Airports

Transportation projects located within 4 miles of a public or private airport, within 10 miles of the end of a public airport runway, or within 5 miles of Offutt Air force Base should be evaluated for potential airspace impacts by coordinating with the NDOT Aeronautics Division and/or completing the Federal Aviation Administration's (FAA) Form 7460-1, Notice of Proposed Construction or Alteration Tool, to determine if an air-space study needs to be submitted to FAA. This evaluation should include both permanent project elements (such as light or traffic signal poles) and temporary construction equipment such as cranes.

8.6.4 Resource Agency Coordination

NDOT coordinates with the appropriate party that administers a potentially affected facility, such as the following parties:

- County and local municipalities
- MPOs
- Local transit agency and Federal Transit Administration (FTA)
- Private railroads and Federal Railroad Administration (FRA)
- NDOT Division of Aeronautics and FAA
- City parks department (for city trail)

8.6.5 Avoidance, Minimization, and Mitigation

In planning transportation system improvement projects, NDOT may avoid or minimize transportation facility impacts by siting projects in locations where other non-involved transportation resources are limited or absent. Other avoidance and minimization measures include the implementation of steeper embankment sideslopes and retaining walls intended to minimize the roadway footprint, and associated resource impacts. Permanent or temporary access accommodations may be necessary to maintain access to existing transportation facilities.

If a negative impact on existing or planned facilities is identified, NDOT may apply one or more of the following mitigation measures:

- Rerouting pedestrians and bicyclists to an equivalent-type facility if the proposed action would permanently or temporarily sever existing pedestrian or bicycle facilities
- Rerouting commercial truck traffic to avoid residential communities
- Relocating and enhancing transit stops
- Signing alternative routes to facilities when primary access routes are permanently or temporarily inhibited, or when a roadway is temporarily closed and traffic is detoured
- Implementing traffic control devices and modifying signal timing

- Improving intersections, including intersection or mid-block crossing treatments to enhance pedestrian safety
- Providing enhanced or new access to airports
- Restricting the height of permanent vertical structures, such as light or traffic signal poles, to comply with airport height restriction zoning
- Restricting the height of construction equipment to comply with airport height restriction zoning
- Providing grade separations to eliminate conflicts between pedestrians/bicyclists and automobiles/trains

8.6.6 Documentation

Projects that involve improvement of roadway, freight, transit, rail, or aviation facilities are likely to involve the generation of specific documentation separate from NEPA documentation to support the purpose of and need for a project. Understanding of the problems or disadvantages of a current transportation system, and how increased future demand could further stress a transportation system are important evaluations as a precursor to NEPA documentation. Examples of studies that are documented in reports include safety analyses, future demand modeling (roadway, as well as transit, passenger rail, and aviation), capacity analyses (including level of service), travel patterns, and traffic operations modeling. Pedestrian and bicycle facilities that are not subject to Section 4(f) are identified and described in only the NEPA documentation; that is, they require no stand-alone documentation. See Section 8.10.6 for Section 4(f) documentation requirements.

8.6.7 Laws, Regulations, and Guidance

Federally funded roadway and pedestrian and bicycle projects would be governed by FHWA laws, regulations, and guidance, including, but not limited to, the following:

- 14 CFR, Aeronautics and Space
- 23 CFR, Highways
- 49 CFR, Transportation
- 42 USC 12101–12213, Americans with Disabilities Act of 1990
- 49 USC, Transportation
- 49 USC 101 et seq., USDOT Act of 1966
- FHWA, October 30, 1987, *Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents*
- FHWA, March 11, 2010, *United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations*
- FHWA, September 2010, *Integrating Freight into NEPA Analysis*

8.7 Recreation Facilities

Recreation facilities include, but are not limited to, parks, recreation areas, wildlife and waterfowl refuges and management areas, conservation areas, hunting preserves, fairgrounds, schools, golf courses, and trails. They may be publicly or privately owned but are open to the public and can be used for recreational activities. They may or may not be subject to Section 4(f) of the USDOT Act of

1966 and Section 6(f) of the LWCF Act of 1965 (see Section 8.10, Section 4(f), and Section 8.11, Section 6(f)). Pedestrian and bicycle facilities may also provide a recreational function. Such facilities are discussed briefly in this section and are further detailed in Section 8.6, Transportation.

8.7.1 Study Area

The study area for recreation facilities is typically consistent with the Section 4(f) study area and includes all properties directly abutting project activities, all properties that may be acquired for temporary easements or temporary or permanent ROW, all properties that may be impacted by access restrictions, and all properties that are in reasonable proximity to project activities if there is the potential for constructive use (see Section 8.10.3).

8.7.2 Resource Identification

Typical desktop resources used to identify existing and planned recreation facilities are as follows:

- Web-based aerial mapping sources, such as Google Earth
- Information from the local department or agency responsible for community recreation facilities
- Comprehensive plans for local communities (future, planned resources must be considered)
- US Fish and Wildlife Service (USFWS) National Wildlife Refuge Locator and Waterfowl Production Areas
- National Park Service (NPS) Mapping the Land and Water Conservation Fund
- Nebraska Game and Parks Commission (NGPC) Interactive GIS Maps for public hunting, boating, fishing, and Missouri River access, and for state parks, recreation areas, and trails
- NGPC Water Trails Guide
- Nebraska's Natural Resources Districts Recreation Areas
- Great Plains Trail Network – Lincoln Area
- Omaha Metropolitan Area Bicycle Map
- TrailLink – Rails-to-Trails Conservancy

Field studies are generally not necessary to determine the presence or absence of recreation facilities; however, field reconnaissance can be helpful in identifying newer properties that are not documented in databases or visible on aerial photographs. Additionally, coordination with city and county planners may be helpful in learning about newly constructed facilities, or those that are planned and funded for near-term construction.

8.7.3 Analysis

In completing the environmental analysis, NDOT identifies potential project impacts on existing and planned recreation facilities. Where the project would convert, sever, or impede access to an existing facility, NDOT would evaluate and apply avoidance, minimization, and mitigation measures, as discussed in Section 8.7.5. "Use" of a resource subject to Section 4(f) and "conversion" of a resource subject to Section 6(f) require specific procedures and analysis, as detailed in Section 8.10, Section 4(f), and Section 8.11, Section 6(f), respectively.

8.7.4 Resource Agency Coordination

Consistent with Official with Jurisdiction (OWJ) requirements of Section 4(f) (see Section 8.10.4), NDOT shall coordinate with the appropriate party that administers a potentially affected recreation facility. The following facility examples are provided, along with the party that generally administers the facility:

- City or county park, recreation area, or trail – City or county parks department, or regional recreation entity
- State park, state recreation area, or wildlife management area – NGPC
- National wildlife refuge or waterfowl production area – USFWS

8.7.5 Avoidance, Minimization, and Mitigation

In planning highway improvement projects, NDOT may avoid or minimize recreation facility impacts by siting projects in locations where these resources are limited or absent. Other avoidance and minimization measures include the implementation of steeper embankment sideslopes and retaining walls intended to minimize the roadway footprint and associated resource impacts. Access accommodations may be necessary to maintain access to recreation facilities, and the signing of alternative routes may be applied when primary access routes are permanently or temporarily inhibited. Mitigation for recreation property conversion may include in-kind replacement or enhancement.

8.7.6 Documentation

Recreation facilities that are not subject to Section 4(f) are identified and described only in the NEPA documentation. That is, they require no stand-alone documentation. See Section 8.10.6 for Section 4(f) documentation requirements.

8.7.7 Laws, Regulations, and Guidance

Laws, regulations, and guidance pertaining to recreation facilities include, but are not limited to, the following:

- 23 CFR 774, Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f))
- 16 USC 1241–1249, National Trails System Act of 1968
- 42 USC 12101–12213, Americans with Disabilities Act of 1990
- 49 USC 303, USDOT Act of 1966, Section 4(f)
- 54 USC 200301–200310, LWCF Act of 1965, as amended (Section 6(f))
- FHWA, October 30, 1987, *Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents*
- FHWA, July 20, 2012, *Section 4(f) Policy Paper*
- NDOT, July 2025, *Section 4(f) Review Guidance*

8.8 Historic Properties

Section 106 of the NHPA (54 USC 300101 et seq.) and its implementing regulations (36 CFR 800) set forth the process that federal agencies must follow when planning undertakings that have the potential to affect historic properties: "Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the [Advisory Council on Historic Preservation (ACHP)] a reasonable opportunity to comment on such undertakings" (36 CFR 800.1(a)). Undertakings are defined as "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval" (36 CFR 800.16(y)). A historic property is "any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in, the National Register of Historic Places [NRHP]" (36 CFR 800.16(l)(1)).

Transportation projects may encounter historic properties during the course of an undertaking. FHWA implements the Federal-Aid Highway Program in Nebraska by funding and approving state and locally sponsored transportation projects that are administered by NDOT. In addition, FHWA is responsible for ensuring that the Federal-Aid Highway Program in Nebraska complies with Section 106. NDOT initiates, and in most cases concludes, consultation with the Nebraska State Historic Preservation Office (SHPO) and other consulting parties, (except for tribal authorities when they expressly request government-to-government consultation) for the purposes of compliance with Section 106. This authorization was established through the *Programmatic Agreement among the Federal Highway Administration, the Nebraska State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the Nebraska Department of Transportation to Satisfy the Requirements of Section 106 for the Federal-Aid Highway Program in the State of Nebraska* (Section 106 PA). All government-to-government consultation with Indian tribes, as described in 36 CFR 800.2, is retained by FHWA.

NDOT's *National Historic Preservation Act Section 106 Guidelines* (Section 106 Guidelines) provide detailed guidance for meeting Section 106 requirements and is referenced throughout this section. The NDOT Cultural Resources Manager is the Professionally Qualified Staff (PQS) managing Section 106 compliance activities for transportation projects and completes all Section 106 PQS memos.

Section 4(f) of the USDOT Act of 1966 also provides protection to historic properties, among other resources, and is discussed in Section 8.10, Section 4(f).

8.8.1 Area of Potential Effects

The area of potential effects (APE) is defined at 36 CFR 800.16(d) as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking." Specific guidance regarding the APE is provided in Chapter 4 of NDOT's Section 106 Guidelines.

8.8.2 Resource Identification

Resource identification under Section 106 begins with a records search and literature review for previously identified historic properties. The records search and literature review will help develop cultural and historical contexts that may be important in understanding the area's cultural resources. Based on the results of the records search and literature review, a field survey may or may not be warranted. For each architectural or structural resource identified, the NDOT PQS makes a determination regarding NRHP eligibility and defines the NRHP boundary. When archeological sites are located within the APE, the archeologist shall define or redefine site boundaries as appropriate

based on current survey information and following best practices. Determining NRHP eligibility of an archeological site may not be necessary in every situation. For example, if the archeological site will be avoided by the undertaking, determining NRHP eligibility is not required. Proceeding in this manner avoids unnecessary disturbance of the archeological site and should be discussed with the NDOT PQS prior to implementation. Chapters 5 and 6 of NDOT's Section 106 Guidelines provide specific guidance on conducting archeological investigations and architectural/structural investigations, respectively, and on determining NRHP eligibility.

8.8.3 Analysis

Within the framework of the Section 106 process, the impact analysis is referred to as the determination of effects. Effects determinations are made by applying the criteria of adverse effect, as defined in 36 CFR 800.5, to each resource listed in, or eligible for listing in, the NRHP. Potential impacts include direct disturbance, as well as indirect effects such as visual or vibration. Visual effects could be adverse from introduction of new features that contrast with existing historic features. Vibration during construction, and in certain instances from traffic operations, has the potential to damage historic structures. Specific guidance on analyzing and determining project effects (that is, no historic properties affected, no adverse effect, or adverse effect) on historic properties is provided in Chapters 5 and 6 of NDOT's Section 106 Guidelines.

The Section 106 PA defines three tiers of Section 106 review based on the type of effects on historic properties. Detailed guidance on the three tiers and how they are applied is provided in NDOT's Section 106 Guidelines, Chapter 3.

If a project would result in adverse effects on historic properties, additional public involvement and notification are required. NDOT's Public Involvement Procedures also require disclosing the adverse effects in the public notice announcing the availability of the project's EA or EIS. Chapter 9, Public Involvement Procedures, provides additional information.

8.8.4 Consultation

The Section 106 process includes consultation with interested parties, referred to as consulting parties. Section 106 consulting parties will be identified by the NDOT PQS pursuant to 36 CFR 800.2(c), and public involvement processes for undertakings will be consistent with agreed-upon stipulations in the Section 106 PA and procedures outlined in NDOT's Public Involvement Procedures and any project-specific public involvement processes. The NDOT PQS will plan consultations appropriate to the scale and scope of the undertaking, following NDOT's Public Involvement Procedures regarding outreach methods and timing. Consulting parties may include federally recognized Indian tribes, federal and state agencies; project proponents; historical societies; and other interested parties. Refer to NDOT's Tribal Coordination procedures (Chapter 10 of this Manual) for additional details regarding tribal consultation and government-to-government consultation procedures. NDOT shall seek and consider the views of the public and consulting parties in a manner that reflects the nature and complexity of the undertaking and its effects on historic properties. Guidance on involving consulting parties and the public in the Section 106 process is provided in Chapter 2 of NDOT's Section 106 Guidelines.

8.8.5 Avoidance, Minimization, and Mitigation

If a historic property is identified within the APE, NDOT will develop strategies to avoid, minimize, or mitigate effects on that property. Measures to avoid or minimize effects can include such things as reducing project scope, adjusting the project design and/or revising ROW or easement needs.

Where adverse effects, as defined by the Criteria of Adverse Effects set forth in 36 CFR 800.5(a), cannot be avoided, FHWA or NDOT shall notify the Nebraska SHPO, ACHP, and consulting parties, as appropriate, of adverse effect determinations.

When a finding of adverse effect has been made, FHWA or NDOT shall, in consultation with the Nebraska SHPO, ACHP (if participating), and consulting parties, evaluate alternatives or modifications to the project that would avoid, minimize, or mitigate adverse effects on historic properties.

NDOT's Section 106 Guidelines, Chapters 5 and 6, provide specific guidance on planning and completing mitigation for adverse effects on historic properties.

8.8.6 Documentation

Documentation of compliance with Section 106 of the NHPA is required for all projects. NDOT follows the requirements of the Section 106 PA and prepares Tier I, II, or III documentation, as applicable. Specific guidance on documentation required at different steps through the Section 106 process is provided in NDOT's Section 106 Guidelines. Various supporting documents would be summarized and referenced in the NEPA documentation. Section 4(f) documentation requirements for historic properties are discussed in Section 8.10.6. In some cases, precise location data (that is, written descriptions and maps) are documented in internal reports and shown in figures but are not made available to the public in order to protect sensitive properties.

8.8.7 Laws, Regulations, and Guidance

Numerous laws, regulations, and guidance pertain to historic properties, including, but not limited to, the following:

- 36 CFR 60.4, National Register of Historic Places, Criteria for Evaluation
- 36 CFR 61, Procedures for State, Tribal, and Local Government Historic Preservation Programs
- 36 CFR 63, Determinations of Eligibility for Inclusion in the National Register of Historic Places
- 36 CFR 296, Protection of Archaeological Resources: Uniform Regulations
- 36 CFR 800, Protection of Historic Properties
- 43 CFR 3, Preservation of American Antiquities
- 16 USC 470aa–mm, Archaeological Resources Protection Act of 1979
- 25 USC 3001–3013, Native American Graves Protection and Repatriation Act of 1990 (NAGPRA)
- 49 USC 101 et seq., USDOT Act of 1966
- 54 USC 300101 et seq., National Historic Preservation Act of 1966
- 54 USC 312501–312508, Archaeological and Historic Preservation Act of 1974
- 54 USC 320301–320303, American Antiquities Act of 1906
- AASHTO, August 2016, *AASHTO Practitioner's Handbook 06, Consulting Under Section 106 of the National Historic Preservation Act*
- ACHP, March 10, 2005, Exemption Regarding Historic Preservation Review Process for Effects to the Interstate Highway System (70 FR 11928–11931)

- ACHP, November 16, 2012, Program Comment Issued for Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges (77 Federal Register [FR] 68790–68795)
- Council on Environmental Quality (CEQ) and ACHP, March 2013, *NEPA and NHPA: A Handbook for Integrating NEPA and Section 106*
- Executive Order (EO) 11593, Protection and Enhancement of the Cultural Environment (36 FR 8921 [1971])
- EO 13175, Consultation and Coordination with Indian Tribal Governments (65 FR 67249 [2000])
- FHWA, n.d., Bridge Program Comment Excepted Bridges List (includes bridges identified by Nebraska as having exceptional quality)
- FHWA, n.d., "Historic Preservation," *Environmental Review Toolkit*
- FHWA, Nebraska SHPO, ACHP, and NDOT, 2023, *Programmatic Agreement Among the Federal Highway Administration, the Nebraska State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the Nebraska Department of Transportation to Satisfy the Requirements of Section 106 for the Federal-Aid Highway Program in the State of Nebraska*
- NDOT, 2017, *Standard Specifications for Highway Construction*, Section 107.10, Archaeological and Paleontological Discoveries
- NDOT, October 2019, National Historic Preservation Act Section 106 Guidelines
- Neb. Rev. Stat. Sections 12-1201 through 12-1212, Nebraska Unmarked Human Burial Sites and Skeletal Remains Protection Act
- Neb. Rev. Stat. Section 39-1363, Preservation of historical, archeological and paleontological remains; agreements; funds; payment
- Neb. Rev. Stat. Sections 82-501 through 82-510, Nebraska Archaeological Resources Preservation Act
- Nebraska SHPO, May 22, 2006, *National Historic Preservation Act Archeological Properties Section 106 Guidelines*

8.9 Visual

Visual resources include character-defining elements of an area that can consist of natural features (such as water features, vegetation, and natural outcrops), cultural features (such as architecture and skylines), and transportation elements (such as roadways, bridges, noise barriers, stormwater facilities, and pedestrian and bicycle facilities). Visual resources evoke strong emotions from human viewers, provide a sense of community for residents of an area, and may promote tourism. Transportation system designers should consider context-sensitive design to integrate a transportation improvement within the visual environment. Adverse and beneficial impacts on visual resources should be addressed, and mitigation measures identified and implemented to reduce potential adverse impacts on the visual environment.

8.9.1 Study Area

The visual resources study area, often referred to as the area of visual effect (AVE), depends on the viewshed surrounding the project. The elevation and visibility of project elements, such as from a

scenic vista like Scottsbluff National Monument, must be considered when addressing potential visual resource impacts.

There are two types of viewsheds: static and dynamic. Static viewsheds are what *neighbors* of the road see from a stationary location. Dynamic viewsheds are what *travelers* on the road see as they move through the landscape. The AVE is the sum of the viewsheds of all neighbors with views of the road and all travelers with views from the road. Identifying the static viewsheds of neighbors and the dynamic viewsheds of travelers is critical to accurately defining the AVE. Viewsheds based solely on topography should be considered preliminary, subject to adjustment made during a field review of the project corridor. Although viewsheds can be initially developed using information gleaned from electronic databases, field observations are important for verifying viewsheds and determining the actual landscape units from which visual impacts will be assessed.

8.9.2 Resource Identification

Visual resources include various elements that are pleasing to the eye. Visual resources and the environments they dominate can be divided into three categories: natural, cultural, and project. Document authors should catalog specific items in the inventory of the natural, cultural, and project environments. For the natural environment, the list includes air, land, water, vegetation, and animal life. For the cultural environment, the list includes buildings, structures, transportation infrastructure, other built artifacts, and art. For the project environment, the list includes alignment, profile, cross-section, grading, drainage, pavement, signs, signals, plantings, and other elements of a modern highway. These lists are basic but usually provide a sufficient description of the visual character of the AVE. Other items may be included in these lists depending on the project's landscape setting.

An inventory of the location and interests of neighbors and travelers to the area is necessary to determine their sensitivity to changes in the visual character of the AVE. Locating neighbors and travelers, and defining their typical self-interests and visual preferences is important to the identification of land visible to or from the proposed project to properly assess visual resources.

8.9.3 Analysis

The visual resources analysis must consider both the views of the transportation improvement from its neighbors and the surrounding environment, and the views of travelers along the transportation improvement. Both adverse and beneficial visual impacts of a project need to be addressed. The analysis should identify the project's potential effects on visually sensitive resources and locations based on changed views to or from the resources and the perceptions of viewers. The viewshed of the study area can be divided into distance zones based on their visibility, such as foreground, middle ground, background, and seldom-seen zones. Pictures, maps, and drawings can be used to document key visual elements to provide the reader with context.

The existing landscape is considered to have a high visual quality when its setting (including landforms, water, vegetation, and human-made development) has striking characteristics that convey visual excellence. The sensitivity of the visual environment depends on the type of use, amount of use, adjacent land use, landscape characteristics, and other factors.

NEPA analysis for an EA or EIS often includes consideration of visual resources because the transportation projects are typically greater in size and potential to affect visual resources. FHWA's *Guidelines for the Visual Impact Assessment of Highway Projects* should be followed to determine the appropriate methodology and level of effort for evaluating impacts on visual quality, but Bureau of Land Management (BLM) and USDA Forest Service methodologies should also be considered when a project occurs within or near BLM and USDA Forest Service lands. A visual impact assessment includes four phases: (1) establishment (defining the area of visual effect, understanding the project's visual character, and documenting the regulatory context); (2) inventory (identifying the affected

environment and examining the visual quality); (3) analysis (evaluating potential impacts on visual resources and viewers, and identifying the degree of impact); and (4) mitigation (considering enhancements and recommending avoidance, minimization, and compensation for adverse impacts).

8.9.4 Resource Agency Coordination

When potentially significant visual impacts are identified, NDOT typically coordinates with the appropriate party that manages visual resources. Parties that oversee visual resources include NPS, USDA Forest Service, NGPC, county and municipal government offices, and historical societies.

If a project would have an adverse effect on a visual resource that is also a property protected under Section 106 of the NHPA, consultation would be required (see Section 8.8.4 for more information). In addition, visual resources that are also properties protected by Section 4(f) of the USDOT Act of 1966 located near a proposed project, are evaluated for potential constructive use (see Section 8.10.3 for more information).

8.9.5 Avoidance, Minimization, and Mitigation

Consideration of visual impacts and how to avoid, minimize, or mitigate for adverse visual impacts may be applicable, depending on the visual resources present. The EA or Final EIS should identify any proposed visual impact mitigation for the preferred alternative. Mitigation can focus on the natural environment (for example, using compatible vegetation for landscaping, using vegetation for screening, and minimizing changes to existing topography), cultural environment (for example, avoiding conflict with landmarks or historic resources, using consistent signage, and using appropriate colors), and project environment (for example, lighting compatibility with night views).

8.9.6 Documentation

To help assess potential visual impacts of a project, a visual impact assessment document may be prepared. Information from the visual impact assessment can be summarized in the NEPA documentation. Authors should document the visual character of the AVE with maps, a narrative description, and selected images. Authors should document the inventory of the visually distinctive resources and visual character of the natural, cultural, and project environments for each landscape unit. For the natural environment, this is the visual character of land, water, vegetation, animals, and atmospheric conditions. For the cultural environment, this is the buildings, infrastructure, structure, artifacts, and works of art. For the project environment, this is highway geometrics, grading, constructed elements, vegetative cover, and other ancillary visual elements.

The visual character of the AVE interacting with the documented visual preferences of the affected population will determine the existing status of the AVE's visual quality.

8.9.7 Laws, Regulations, and Guidance

Laws, regulations, and guidance pertaining to visual resources include, but are not limited to, the following:

- FHWA, October 30, 1987, *Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents*
- FHWA, 1988, Visual Impact Assessment for Highway Projects
- FHWA, January 2015, *Guidelines for the Visual Impact Assessment of Highway Projects*
- NDOT, June 2008, *Plan for the Roadside Environment*

- Transportation Research Board, 2013, *National Cooperative Highway Research Program Report 741, Evaluation of Methodologies for Visual Impact Assessments*

8.10 Section 4(f)

Section 4(f) of the USDOT Act of 1966, codified at 23 USC 138 and 49 USC 303, declares that it is national policy "that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) applies only to USDOT-funded projects.[1] The statute specifies that transportation projects

> **requiring the *use* of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) [may be approved] only if—**
>
> > **(1) there is no prudent and feasible alternative to using that land; and**
> >
> > **(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the *use*. (49 USC 303; italics added)**

Section 4(f) is implemented through FHWA regulations found at 23 CFR 774 and through NDOT's *Section 4(f) Review Guidance*. Unlike NEPA, which is a procedural law intended to promote informed decisions, Section 4(f) is substantive and can dictate project development, location, and scope.

8.10.1 Study Area

The study area for identifying potentially impacted Section 4(f) properties includes all properties directly abutting project activities, all properties that may be acquired for temporary easements or temporary or permanent ROW, all properties that may be impacted by access restrictions, and all properties that are in reasonable proximity to project activities if there is the potential for constructive use (see Section 8.10.3).

8.10.2 Resource Identification

Section 4(f) properties include publicly owned parks, recreation areas, and wildlife and waterfowl refuges, as well as historic properties that are listed in, or eligible for listing in, the NRHP, regardless of ownership. Formally planned parks, recreation areas, and wildlife and waterfowl refuges are also protected by Section 4(f). NDOT typically identifies Section 4(f) properties through desktop resources including, but not limited to, the following:

- Web-based aerial mapping sources, such as Google Earth
- Information from the local department or agency responsible for community parks, recreation areas, and wildlife and waterfowl refuges
- Comprehensive plans for local communities (future, formally planned resources must be considered)
- USFWS National Wildlife Refuge Locator and Waterfowl Production Areas

[1] USDOT-funded projects include projects funded by FHWA, FRA, FTA, and FAA.

- NGPC Interactive GIS Maps for public hunting, boating, fishing, and Missouri River access, and for state parks, recreation areas, and trails
- Nebraska's Natural Resources Districts Recreation Areas
- Great Plains Trail Network – Lincoln Area
- Omaha Metropolitan Area Bicycle Map
- TrailLink – Rails-to-Trails Conservancy

Archeological and standing structure surveys are commonly necessary to determine the presence or absence of historic properties and their eligibility for inclusion in the NRHP as identified through the Section 106 process discussed in Section 8.8, Historic Properties. While field studies are generally not necessary to determine the presence or absence of parks, recreation areas, or wildlife and waterfowl refuges, coordination with city and county planners may be helpful in learning about newly constructed or planned recreation properties.

8.10.3 Analysis

In accordance with NDOT procedures, Section 4(f) analysis begins early in the project development process with the identification of Section 4(f) resources. Section 4(f) analysis is typically completed following NHPA Section 106 evaluation, and associated identification of historic properties (see Section 8.8, Historic Properties). Analysis of potential Section 4(f) impacts includes the following steps, as outlined in the NDOT *Section 4(f) Review Guidance*.

- Identify potential Section 4(f) resources using the desktop resources listed in Section 8.10.2 as well as the NDOT PQS Section 106 Tier memo prepared for the project.
- Determine applicability of Section 4(f) to parks, recreation areas, and wildlife and waterfowl refuges. This determination can be made with the aid of online resources; coordination with the landowner, NEPA Team Lead, or Environmental Documents Unit Supervisor; or site visits.
- Determine whether or not the project would result in a *use* of one or more Section 4(f) properties. 23 CFR 774.17 specifies that a *use* of Section 4(f) property occurs when:
  - Land is permanently incorporated into a transportation facility; or
  - There is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose as determined by the criteria in 23 CFR 774.13(d); or
  - There is a constructive *use* of a Section 4(f) property as determined by the criteria in 23 CFR 774.15.
- If a Section 4(f) *use* is identified, prepare documentation based on the appropriate approval or evaluation type listed in Section 8.10.6. In the case of an individual Section 4(f) evaluation, this includes demonstration of no prudent and feasible alternative to the *use* and all possible planning to minimize harm.

Details regarding the types of *use*, public involvement requirements, and associated documentation are provided in the NDOT *Section 4(f) Review Guidance*. Public involvement requirements are also described in Section 9.2.2.4.

If a project would result in *de minimis* impacts on properties protected by Section 4(f), language in the EA availability notice should address the public notification requirements for these resources. Chapter 9, Public Involvement Procedures, provides additional information.

8.10.4 Resource Agency Coordination

In accordance with the Section 4(f) requirements of 23 CFR 774.5, NDOT coordinates Section 4(f) considerations with the OWJ. The following examples constitute Section 4(f) property types and the OWJ that generally administers them:

- City park or trail – City parks department
- State park, state recreation area, or wildlife management area – NGPC
- National parks or monuments – NPS
- National wildlife refuge or waterfowl production area – USFWS
- Historic property – SHPO or Tribal Historic Preservation Office or Certified Local Government representative[2,3]
- School grounds (playground, ball fields, green space) – School superintendent

8.10.5 Avoidance, Minimization, and Mitigation

When a project involves an individual Section 4(f) evaluation, Section 4(f) requires demonstration that there are no feasible and prudent avoidance alternatives (defined at 23 CFR 774.17) and that all possible planning to minimize harm has occurred (23 CFR 774.7). Further, the project alternative with the least overall harm must be selected (23 CFR 774.3(c)(1)). In considering these definitive requirements, NDOT must avoid or minimize the *use* of Section 4(f) properties by siting projects in locations where these resources are limited or absent. If *use* of a Section 4(f) property cannot be completely avoided, additional minimization measures, such as steeper embankment sideslopes or retaining walls, may be required to minimize the roadway footprint and associated resource impacts. Access accommodations may also be necessary to maintain access to Section 4(f) properties.

If a *use* of a Section 4(f) property is identified, NDOT must consult with the OWJ (see Section 8.10.4) and may apply a mitigation measure, which may include, but is not limited to, the following (see the *Section 4(f) Policy Paper*, Section 3.5):

- For public parks, recreation areas, or wildlife and waterfowl refuges, replacement of land or facilities, or both, of comparable value and function, or monetary compensation to enhance the remaining land such that it is whole and valuable to the recreating public
- For historic sites, measures necessary to preserve the historic integrity of the site and that have been agreed to in accordance with 36 CFR 800 by SHPO or Tribal Historic Preservation Office, and other consulting parties

8.10.6 Documentation

Section 4(f) documentation requirements are detailed in the NDOT *Section 4(f) Review Guidance* and are summarized as follows:

- Properties Identification Process: The process of identifying Section 4(f) properties is an early step in assessing a project's potential impact on these properties. This begins before the probable NEPA class of action is determined and involves identifying potential Section 4(f)

[2] Some Nebraska municipalities have a Certified Local Government representative who is responsible for reviewing Section 106 documentation, including OWJ letters.

[3] Coordination with private owners of historic properties is typically conducted; however, a formal OWJ letter is not required.

properties that may be affected. NRHP listed and eligible properties and their respective Section 4(f) eligibility are documented in the Section 106 PQS memo. The project file should include documentation of the level of effort and justification for the conclusion that it is unlikely that there are additional unrecorded historic properties that could be subject to Section 4(f). As the project progresses, these identification efforts are continually updated, culminating in the final documentation of Section 4(f) property uses, exceptions, or *de minimis* impacts. This documentation is then used in NEPA documentation and any subsequent re-evaluations. For a more comprehensive understanding, see the NDOT *Section 4(f) Review Guidance*.

- Exceptions Form: In accordance with 23 CFR 774.13, FHWA has identified various exceptions to the requirement for Section 4(f) approval. The associated NDOT Exceptions Form is used to document the appropriateness of a specific Section 4(f) exception, and associated OWJ agreement, for a single Section 4(f) property. One Exceptions Form is required for each applicable Section 4(f) property along a project for which an exception is appropriate.
- *De minimis* Form: A *de minimis* impact is one that will not adversely affect the activities, features, or attributes qualifying a property for protection under Section 4(f). 23 CFR 774.17(5) states that "a *de minimis* impact determination under § 774.3(b) subsumes the requirement for all possible planning to minimize harm by reducing the impacts on the Section 4(f) property to a *de minimis* level." The NDOT *De minimis* Form documents a Section 4(f) *de minimis* determination, and associated OWJ agreement and public involvement, for a single Section 4(f) property, as described in 23 CFR 774.7. One *De minimis* Form is required for each Section 4(f) property along a project for which a *de minimis* determination is appropriate.
- Programmatic Evaluation: In accordance with 23 CFR 774.3(d), programmatic Section 4(f) evaluations may be relied on to cover a particular project only if the specific conditions in the programmatic evaluation are met. When applicable, NDOT documents project consistency with one of the five nationwide programmatic Section 4(f) evaluations, including the consideration of feasible and prudent avoidance alternatives and OWJ coordination. Guidance on completing a Section 4(f) Programmatic Evaluation can be found in the NDOT *Section 4(f) Review Guidance*.
- Individual Evaluation: Individual Section 4(f) evaluations are prepared when a *use* of a Section 4(f) property is unavoidable and other documentation types do not apply. An Individual Evaluation is used to document a Section 4(f) *use* that is not *de minimis*, in accordance with 23 CFR 774.5 and 23 CFR 774.7, and includes records of public involvement, OWJ coordination, no feasible and prudent avoidance alternative, all possible planning to minimize harm, and least overall harm analysis. Guidance on completing a Section 4(f) Individual Evaluation can be found in the NDOT *Section 4(f) Review Guidance*.

8.10.7 Laws, Regulations, and Guidance

The following laws, regulations, and guidance pertain to Section 4(f) properties:

- 23 CFR 774, Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f))
- 49 USC 303, USDOT Act of 1966, Section 4(f)
- AASHTO, May 2009, *AASHTO Practitioner's Handbook 11: Complying with Section 4(f) of the U.S. DOT Act*
- FHWA, October 30, 1987, *Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents*

- FHWA, July 20, 2012, *Section 4(f) Policy Paper*
- FHWA, March 30, 2016, *Fixing America's Surface Transportation (FAST) Act: Questions and Answers Related to Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites*
- FHWA, n.d., Nationwide Section 4(f) Programmatic Evaluations
- FHWA, n.d., "Section 4(f)," *Environmental Review Toolkit*
- FHWA, n.d., *Section 4(f) at a Glance*
- FHWA, n.d., *Section 4(f) Tutorial*
- NDOT, July 2025, *Section 4(f) Review Guidance*

8.11 Section 6(f)

The LWCF Act of 1965, as amended (54 USC 200301–200310), was enacted to help create outdoor recreation resources "by (1) providing funds for and authorizing Federal assistance to the States in planning, acquisition, and development of needed land and water areas and facilities and (2) providing funds for the Federal acquisition and development of certain lands and other areas" (P.L. 88-578, Title 1, Sec. 1(b) (1964)). Section 6(f) of the LWCF Act contains provisions to protect the federal investment and the quality of resources developed with LWCF assistance. Section 6(f) protects grant-assisted areas from conversions and other uses. NGPC is responsible for compliance and enforcement of the provisions of Section 6(f) for Nebraska resources developed with LWCF grants.

8.11.1 Study Area

The study area for Section 6(f) properties is typically consistent with the study area for Section 4(f) properties, which include public park and recreation resources. However, roadway closures may affect access to facilities that lie outside of the typical study area, causing the need for their inclusion.

8.11.2 Resource Identification

NDOT's approach for identifying Section 6(f) resources involves first determining whether any local or state parks or recreation resources subject to Section 4(f) are within the study area and adjacent to the project alignment (see Section 8.10, Section 4(f)). If Section 4(f) resources are adjacent to the project, NDOT must determine if any LWCF grant funding was used to develop those resources. The primary method for determining whether properties are protected under Section 6(f) is consultation with the NGPC State Liaison Officer. Additionally, the Trust for Public Land keeps a map of LWCF projects, which is available on the Trust for Public Land's LWCF website. This map provides the geographic locations of, and general information about, Section 6(f) resources, but consultation with NGPC is necessary to confirm the type and location of the resource in order to assess its potential impact.

8.11.3 Analysis

Section 6(f) resources adjacent to the project alignment should be analyzed to determine whether the project has the potential to convert properties that were acquired or developed with LWCF grant funding. Conversion may occur by a change in use or a change in land ownership, such as when ROW or an easement is acquired for a transportation project. If the analysis determines that the project requires the conversion of a Section 6(f) resource, NDOT will begin coordination with the NGPC State Liaison Officer to determine the extent of conversion and potential mitigation options. More detailed information about the Section 6(f) conversion process is provided in NDOT's *Resource Analysis Guidance – Land and Water Conservation Fund Recreation Areas (Section 6(f))*.

8.11.4 Resource Agency Coordination

If public park and recreation areas are adjacent to the project alignment, coordination with NGPC is necessary to obtain grant information for Section 6(f) resources. Additionally, if the project would result in the conversion of a Section 6(f) resource, NDOT must coordinate with NGPC and NPS to determine a suitable replacement for the converted resource of "reasonably equivalent usefulness and location" (54 USC 200305(f)(3)).

8.11.5 Avoidance, Minimization, and Mitigation

Avoidance, minimization, and mitigation for Section 6(f) resources primarily involves replacement in kind. When a project results in the conversion of a Section 6(f) resource to another use, replacement land (or facilities) must be agreed upon by NGPC and NDOT. If land was not purchased with LWCF funds, replacement land may not be necessary because mitigation is tied directly to the resource that was funded. Resources such as playground equipment or bike racks may be relocated to satisfy Section 6(f) commitments. More detailed information about the Section 6(f) conversion process is provided in NDOT's *Resource Analysis Guidance – Land and Water Conservation Fund Recreation Areas (Section 6(f))*.

8.11.6 Documentation

When Section 6(f) park and recreation properties are adjacent to a project alignment, Section 6(f) documentation should include correspondence with NGPC that details the type and location of the LWCF grant-funded recreation resource. Documentation of the correspondence is sufficient if the proposed project results in no conversion of the Section 6(f) resource. Additional documentation is necessary if the proposed project results in conversion of a Section 6(f) resource.

State-funded projects that would result in conversion of Section 6(f) property but that do not require USDOT NEPA approval, will require NEPA documentation (usually an EA) for NPS specific to the Section 6(f) conversion. In such a case, the proposed federal action is not the entire transportation project; instead, it is approval of the conversion only. Therefore, "the scope of the environmental review should **not** include impacts of the action precipitating the conversion on resources beyond the LWCF boundary area" (NPS 2023; emphasis added).

If the transportation project is funded in part through a USDOT agency, such as FHWA, or has other federal approvals that require NEPA, the effects of the conversion may be discussed in the overall project NEPA documentation, and NPS will make its conversion decision based on the LWCF assessment in the NEPA documentation. The NEPA documentation should discuss the results of the Section 6(f) conversion process detailed in NDOT's *Resource Analysis Guidance – Land and Water Conservation Fund Recreation Areas (Section 6(f))* and should include documentation of the following:

- NGPC determination of conversion
- Conclusion of land appraisal
- NPS conversion proposal forms and mitigation/conversion proposal
- NPS signed amendment to the original LWCF agreement approving the conversion.

8.11.7 Laws, Regulations, and Guidance

Laws, regulations, and guidance pertaining to Section 6(f) properties include, but are not limited to, the following:

- 36 CFR 59, Land and Water Conservation Fund Program of Assistance to States; Post-completion Compliance Responsibilities

- 54 USC 200301–200310, LWCF Act of 1965, as amended (Section 6(f))
- NDOT, December 2018, *Resource Analysis Guidance – Land and Water Conservation Fund Recreation Areas (Section 6(f))*
- NGPC, 2025, Land and Water Conservation Fund
- NPS, August 29, 2022, LWCF Forms
- NPS, October 1, 2023, *Federal Financial Assistance Manual*, Vol. 72, Land and Water Conservation Fund State Assistance Program

8.12 Utilities

Utilities include electric power lines and telecommunication lines (overhead and underground), and water, sanitary sewer, storm sewer, and oil and natural gas pipelines (underground). Roadway and bridge construction projects frequently require the revision and relocation of utilities, and NDOT is responsible for providing liaison with publicly and privately owned utility companies. Utilities are typically disturbed during construction activities such as grading, paving, and pier placement. Conflicts with utilities can affect both the cost and schedule of a project and can also influence the selection of the preferred alternative. Consideration of installation and upgrade of utilities in conjunction with a roadway or bridge project could minimize the need for separate disturbance for utility projects. NDOT addresses planning for utilities in its *Utility Accommodation Policy* and its *Roadway Design Manual*, Chapter 10, Section 12, and relocations of utilities under Neb. Rev. Stat. Section 39-1304.02.

8.12.1 Study Area

The study area for utilities typically extends 0.1 mile beyond the existing ROW.

8.12.2 Resource Identification

The presence of utilities can be identified by coordinating with various entities, using desktop resources, and conducting field investigations. Typical desktop resources used to identify utilities are as follows:

- Project design plans
- Plan-in-Hand Report
- Web-based aerial mapping sources, such as Google Earth
- Information from local utility companies
- Information from municipalities
- Comprehensive plans for local communities

8.12.3 Analysis

In completing the environmental analysis, the project sponsor will evaluate the potential project impacts on utilities in the study area. Locations of utility infrastructure, such as transmission lines or pipelines, should be shown in figures. The analysis should consider whether a utility upgrade would improve the environment by addressing an unsafe or hazardous condition, and whether non-aesthetic impacts would be reduced through activities such as burying an overhead power line. Utility impact comparisons in EAs and EISs may include comparisons of relocation costs.

NDOT has the authority and responsibility to accommodate and regulate utility occupancy on all state highways. On federally funded and federal-aid transportation projects involving utility relocations, the utility company and NDOT agree in writing on their separate responsibilities for financing and accomplishing the relocation work. The document author coordinates with NDOT to identify who is responsible for utility relocation. If any federal funds are used to relocate utilities, or if the project contractor will be responsible for utility relocation, the relocation is considered a federal action subject to NEPA, and the document author should verify that the new utility location is included in the project study area and reviewed appropriately.

8.12.4 Resource Agency Coordination

NDOT or LPAs and project designers typically coordinate with utility companies to inform them of project plans and to coordinate responsibilities for relocating utilities as needed. NDOT coordinates with municipalities during project planning regarding their knowledge of utility locations.

8.12.5 Avoidance, Minimization, and Mitigation

The NEPA documentation should include avoidance, minimization, and mitigation measures as applicable. If utility impacts are identified, measures to avoid, minimize, or mitigate impacts should be considered. Such measures include requiring the construction contractor to coordinate with utilities and to keep utility outages brief and requiring utilities to coordinate with their customers to inform them of planned outages. If utility relocation funding or responsibility is unknown, a commitment should be included in the mitigation section for NDOT's Roadway Designer to review the status of utilities when available and verify that the utility relocation is within the study area or is reviewed appropriately.

8.12.6 Documentation

The NDOT Plan-in-Hand Report and project design plans document the types, owners, and locations of utilities within and adjacent to the study area. No separate documentation beyond the NEPA documentation is required.

8.12.7 Laws, Regulations, and Guidance

The following regulations and guidance pertain to utilities:

- 23 CFR 635, Construction and Maintenance
- 23 CFR 645, Utilities
- NDOT, May 2022, *Roadway Design Manual*, Chapter 10, Section 12, Utilities
- NDOT, January 12, 2024, *Utility Accommodation Policy*
- Neb. Rev. Stat. Section 39-1304.02, State highways; federal aid; relocation of public utilities; cost; limitation

8.13 Air Quality

Managing and permitting emissions sources to maintain acceptable air quality in Nebraska is the responsibility of the Nebraska Department of Water, Energy, and Environment (DWEE) and local agencies, including the Lincoln-Lancaster Health Department, City of Omaha Air Quality Control, and Douglas County Health Department, along with oversight by the US Environmental Protection Agency (EPA). These agencies are responsible for protecting ambient air quality, which is that portion of the outdoor air that is accessible to the public. Air quality within the confines of workplaces is regulated by

the Occupational Safety and Health Administration for the purpose of ensuring safe and healthful working conditions for employees. With respect to roads and other surface transportation projects, the air quality of concern is that air just outside thoroughfares such as roadways (for example, on sidewalks and at residences and businesses) or outside of freeway ROW.

With respect to transportation projects, the Clean Air Act Amendments of 1990 (42 USC 7401 et seq.) regulate toxic air emissions in the United States, including Mobile Source Air Toxics (MSAT) and six criteria pollutants: particulate matter, sulfur dioxide, nitrogen dioxide, ground-level ozone, carbon monoxide, and lead. NDOT and DWEE entered into an MOU in 2021 where NDOT adheres to the MSAT guidance and DWEE monitors National Ambient Air Quality Standards (NDOT and DWEE 2021). Under the MOU, NDOT and DWEE commit to future exchanges of information regarding nonattainment determinations, future highway projects, potential environmental issues, and other issues of common interest.

8.13.1 Study Area

Transportation conformity (often referred to as conformity) "is a way to ensure that Federal funding and approval goes to those transportation activities that are consistent with air quality goals" (FHWA 2021). Conformity applies to transportation projects that require federal funding or approval in areas that do not meet, or previously have not met, air quality standards for ozone, carbon monoxide, particulate matter, or nitrogen dioxide. These areas are known as nonattainment areas or maintenance areas, respectively (40 CFR 51 and 40 CFR 93). An air quality study area typically includes any roadway intersections where air quality would be affected by the project. However, when a project would reduce urbanwide vehicle miles traveled, the study area can be expanded to the urban area to allow for an emissions analysis that could show the potential benefits of urbanwide emission reduction.

8.13.2 Resource Identification

An air quality analysis typically includes characterization of the existing air quality in comparison to National Ambient Air Quality Standards (NAAQS) and Nebraska Ambient Air Quality Standards as well as consideration of MSATs. Nebraska Ambient Air Quality Standards are the same as the NAAQS, and Nebraska does not have any other air quality standards specific to transportation. The characterization of existing air quality is typically accomplished by downloading air quality monitoring data from online databases such as the AirData database maintained by EPA. The characterization of existing air quality should also discuss the EPA attainment status designation of the project area for each NAAQS-regulated pollutant as either attainment, maintenance (nonattainment within the past 20 years), or nonattainment. The NAAQS for particles under 10 microns in diameter (PM_{10}), particles under 2.5 microns in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), carbon monoxide (CO), and lead (Pb) are summarized in Table 8.13-1.

Table 8.13-1. National Ambient Air Quality Standards

Pollutant	Averaging Period	National Standards [a]	
		Primary	Secondary
PM_{10}	24-hour	150 µg/m^3	150 µg/m^3
$PM_{2.5}$	Annual	12 µg/m^3	15 µg/m^3
	24-hour	35 µg/m^3	35 µg/m^3
Sulfur dioxide (SO_2)	3-hour	-	0.5 ppm
	1-hour	75 ppb	-
Nitrogen dioxide (NO_2)	Annual	53 ppb	53 ppb
	1-hour	100 ppb	-
Ozone (O_3)	8-hour	0.070 ppm	0.070 ppm
Carbon monoxide (CO)	8-hour	9 ppm	-
	1-hour	35 ppm	-
Lead (Pb)	Rolling 3-month period	0.15 µg/m^3	0.15 µg/m^3

Sources: 40 CFR 50.

Note: See the cited regulation for additional details on how measured data are analyzed or averaged, or both, to determine compliance with these standards.

[a] µg/m^3 = microgram per cubic meter, ppb = parts per billion, ppm = parts per million

EPA lists NAAQS attainment status for areas within each state in 40 CFR 81. As of May 2019, Nebraska had no NAAQS nonattainment areas, and one small maintenance area for the 1978 lead standard in eastern Douglas County due to residual lead impacts from soil contamination near the site of the former Asarco lead smelter.

In addition to NAAQS, other transportation-related pollutants of concern are MSATs. "EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors…. These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter" (FHWA 2023). FHWA considers these the priority MSATs, but the list is subject to change. All nine priority MSATs should be considered for projects warranting analysis, as discussed in Section 8.13.3.

8.13.3 Analysis

Based on current vehicle emissions and NAAQS, the pollutants that are transportation-related and potentially subject to analysis under federal transportation conformity air quality rules (40 CFR 93, Subpart A) are ozone, carbon monoxide, PM_{10}, and $PM_{2.5}$. If Nebraska remains in attainment with NAAQS for these pollutants, no transportation conformity air quality analysis requirements will apply to transportation projects under state and federal rules.

Under transportation conformity rules, project impacts on ozone nonattainment and maintenance areas are generally addressed by ensuring that the project-related emissions are within emission budgets established by state air quality regulatory agencies; in Nebraska, this is DWEE (State Implementation Plans) and MPOs. No project hotspot analyses (that is, localized microscale air quality

analyses) are applicable to ozone (as with the other transportation-related pollutants) because it is a regional pollutant as opposed to a pollutant of microscale or hotspot concern. In nonattainment and maintenance areas for carbon monoxide, PM_{10}, and $PM_{2.5}$, there is a potential requirement for microscale or hotspot dispersion analysis.

In addition to addressing the transportation conformity rules, which currently would not apply to any projects in Nebraska given NAAQS attainment status, there is a need to address air quality for projects subject to NEPA review. Decisions on whether to perform either quantitative or qualitative air quality analysis under NEPA should be made on a case-by-case basis, considering project scope, the information provided in this section, and discussions or coordination with federal lead and cooperating agencies.

Since 2004, average per vehicle emission rates have continued to fall dramatically nationwide due to ever more stringent EPA tailpipe emissions standards and clean fuel standards. There are no longer any carbon monoxide nonattainment areas nationwide, and measured carbon monoxide concentrations even in larger urban areas typically do not exceed 20 to 30 percent of the NAAQS. Therefore, NDOT has determined that a qualitative carbon monoxide assessment, summarizing existing air quality measurements and citing these facts, is appropriate for transportation projects for which an EA or an EIS is prepared.

With respect to PM_{10} and $PM_{2.5}$, the transportation conformity rules that apply to nonattainment and maintenance areas for these two pollutants state that quantitative analysis is appropriate for projects that involve high levels of diesel vehicles, including bus and rail terminals that would involve a large number of diesel vehicles congregating at a single location. Given that Nebraska does not have nonattainment or maintenance areas for these pollutants, NDOT has determined that a qualitative analysis is appropriate for these transportation-related pollutants for transportation projects for which an EA or an EIS is prepared.

If needed, project-specific air quality conformity determinations shall continue to be made by FHWA on projects subject to conformity and assigned under NEPA Assignment. For these projects, air quality conformity reports will be prepared by NDOT and submitted electronically to FHWA for air quality conformity determination. NDOT will allow 30 days for FHWA air quality conformity and will not provide NEPA approval on these projects until the conformity determination is received.

MSATs are analyzed using EPA's Motor Vehicle Emissions Simulator (MOVES) vehicle emissions model. FHWA has a tiered approach with three categories for analyzing MSATs in NEPA documentation (FHWA 2023):

1. No analysis for projects with no meaningful potential MSAT effects. This category includes projects qualifying as CEs, projects exempt from conformity requirements under the Clean Air Act, and other projects with no meaningful impacts on traffic volumes or vehicle mix.
2. Qualitative analysis for projects with low potential MSAT effects. This category includes projects that would improve highway operations "without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions" (FHWA 2023). Examples are "minor widening projects; new interchanges; replacing a signalized intersection on a surface street; and projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic" (FHWA 2023).

3. **Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.** This category includes projects that could have "meaningful differences in MSAT emissions among project alternatives" (FHWA 2023). Such projects would "create new capacity or add significant capacity to urban highways such as Interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the [annual average daily traffic] is projected to be in the range of 140,000 to 150,000 or greater by the design year," and would also be located near populated areas (FHWA 2023). This category would also include projects that would "create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location" (FHWA 2023).

Additional details on the required analysis are provided in FHWA's *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* (2023).

8.13.4 Resource Agency Coordination

Federal agency coordination is not required for projects evaluated in an EA or CE. For projects evaluated in an EIS, the scope of any air quality analysis should be discussed in advance through coordination with appropriate federal and state agencies, including the following at a minimum:

- Lead transportation agency, such as NDOT (under NEPA Assignment), FTA, or FRA
- EPA, Region VII
- DWEE

8.13.5 Avoidance, Minimization, and Mitigation

Modern design practices for roadways are typically directed at minimizing congestion, which also tends to minimize vehicle emissions due to idling and stop-and-go conditions. Therefore, for both design and operation of highways, no additional air quality mitigation is recommended by NDOT.

For construction of roadway projects, mitigation should be included in the form of dust suppression via watering, application of dust-suppressing chemicals, and stabilization of soils via re-vegetation or hydroturf or similar applications as soon as practical after cessation of earthmoving activities. In addition, construction equipment contractors and owners on roadway projects should be required by contract to immediately remove from service, or repair, any equipment with continuous smoking exhaust.

8.13.6 Documentation

Air quality documentation is not necessary for non-NEPA projects. Air quality documentation for any project subject to NEPA should consist of descriptive text and data commensurate to the level of NEPA documentation prepared for the project. NDOT recommends the following levels of documentation:

- *CE:* Statement that significant air quality impacts are not anticipated for project operation, and that project construction will be done with appropriate measures to control fugitive dust and visible exhaust emissions.
- *EA:* Summary of available air quality monitoring data for monitor sites nearest to, or most representative of, the study area, or both, and qualitative discussion of potential air quality impacts (or lack thereof) and construction emissions mitigation measures to be applied to the project. Discussion of MSATs corresponding to appropriate project category. For projects with no or negligible MSAT effects (category 1), document the reason for the determination of no meaningful potential impacts, including the factors considered. For projects with low potential

MSAT effects (category 2), discuss the qualitative assessment and the information that is incomplete or unavailable for a project-specific assessment of MSAT impacts. For projects with higher potential MSAT effects (category 3), discuss the quantitative analysis for each alternative, cumulative impacts, incomplete or unavailable information, and mitigation, if applicable. See FHWA's *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* (2023) for details and example language.

- *EIS:* Summary of available air quality monitoring data nearest to, or most representative of, the study area, or both. At a minimum, a qualitative discussion of potential air quality impacts (or lack thereof) and construction emissions mitigation measures to be applied to the project should be provided. Possible quantitative analysis on a pollutant-by-pollutant basis should be considered in consultation with resource agencies listed previously in Section 8.13.4. Construction emissions mitigation measures to be applied to the project should be documented. Discussion of MSATs corresponding to appropriate project category. For projects with no or negligible MSAT effects (category 1), document the reason for the determination of no meaningful potential impacts, including the factors considered. For projects with low potential MSAT effects (category 2), discuss the qualitative assessment and the information that is incomplete or unavailable for a project-specific assessment of MSAT impacts. For projects with higher potential MSAT effects (category 3), discuss the quantitative analysis for each alternative, cumulative impacts, incomplete or unavailable information, and mitigation, if applicable. See FHWA's *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* (2023) for details and example language.

8.13.7 Laws, Regulations, and Guidance

Protection of air quality in Nebraska specific to transportation projects is governed by the following laws, regulations, and guidance:

- 40 CFR 51, Requirements for Preparation, Adoption, and Submittal of Implementation Plans
- 40 CFR 61, Subpart M, National Emission Standard for Asbestos
- 40 CFR 85–92 [Federal on-road and non-road motor vehicle emissions standards]
- 40 CFR 93, Subpart A, Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Laws
- 42 USC 7401 et seq., Clean Air Act of 1970, as amended
- 42 USC 7506, Limitations on Certain Federal Assistance [Clean Air Act conformity requirements]
- 42 USC 7509, Sanctions and Consequences of Failure to Attain [Sanctions for non-compliance with Clean Air Act requirements]
- FHWA, January 18, 2023, *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*
- NDOT and DWEE, August 26, 2021, *Memorandum of Understanding, Air Quality Analysis for Environmental Documents*
- Nebraska Administrative Code, Title 129, Air Quality Regulations

8.14 Noise and Vibration

Noise is generally considered to be unwanted or excessive sound above background conditions. Some of the most pervasive sources of noise in the environment come from transportation systems, such as highways and rail lines. Highway traffic noise is a dominant noise source in urban and rural environments. Automobile noise primarily comprises sounds from engine exhaust, drive train, and tire/roadway interaction. The need for noise analysis is dependent on the type of transportation project. FHWA and NDOT guidance identifies the following three project types to determine if noise analysis is required:

- Type I projects include construction of a highway in a new location; substantial vertical or horizontal alteration of an existing highway; the addition of traffic lanes; addition or relocation of interchange lanes or ramps; restriping existing pavement to add a through or auxiliary lane; and construction of, or substantial alteration of, a weigh station, rest stop, ride-share lot, or toll plaza. Highway traffic noise analyses are required for all Type I projects, and noise abatement measures must be considered when traffic noise impacts are identified.
- Type II projects are those for noise abatement along existing highways. Noise analysis must demonstrate that noise abatement measures would reduce traffic noise impacts. A program to implement Type II projects is optional; Nebraska does not have a Type II program.
- Type III projects include projects not meeting the criteria of a Type I or II project, and do not require noise analysis.

The Federal-Aid Highway Act of 1970 (23 USC 101 et seq.) required FHWA to develop and implement standards for highway noise levels compatible with different land uses and required adequate measures to implement the appropriate noise-level standards before project approval. These standards were promulgated at *23 CFR 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise*. FHWA developed *Highway Traffic Noise: Analysis and Abatement Guidance* to establish noise abatement criteria (NAC) and procedures to be used in the planning and evaluation of noise from traffic on new or modified roadways. In May 2017, FHWA published guidance (*Evaluation of 23 CFR 772 for Opportunities to Streamline the Noise Study Process*) to streamline traffic noise assessment.

NDOT developed a *Noise Analysis and Abatement Policy* and a *Traffic Noise Analysis Guidance Manual* to implement the requirements of the FHWA noise standards promulgated at 23 CFR 772.

Vibration is defined as periodic back-and-forth motion of the particles of an object (such as a building) or medium (such as soil or rock) commonly resulting from an object being displaced from equilibrium. Vibration is measured by peak particle velocity, the maximum rate of movement of a particle in a medium (such as rock or soil) as it travels in an oscillating vibrational wave. FHWA states that "There are no Federal requirements directed specifically to highway traffic induced vibration" (2017). The impact of operational highway traffic induced vibration levels is "less than any known criteria for structural damage to buildings" (FHWA 2017). In some cases, vibrations from trains or construction activities, such as blasting, pile-driving, and operating heavy earth-moving equipment, can damage nearby buildings or affect wildlife.

8.14.1 Study Area

Because noise and vibrations travel away from their source and may cause impacts at a distance, the study area for noise and vibration is often larger than the study area for other resources. The study area can vary depending on the presence or absence of noise impacts on the affected environment, or as part of the alternatives being considered for a project.

For projects requiring noise analysis, the noise study area extends from the beginning point of project construction to the ending point of project construction for each of the build alternatives carried forward for detailed evaluation. The minimum distance to look for noise-sensitive receptors is 300 feet from the proposed edge of pavement, but the NDOT *Noise Analysis and Abatement Policy* states that the study area would need to extend to a distance where impacts are no longer identified. A noise-sensitive receptor is a location of frequent human use, such as residences, hospitals, places of worship, hotels, and libraries (see the NDOT *Noise Analysis and Abatement Policy*, Attachment 1, Noise Abatement Criteria Table, which identifies activity categories and describes the types of receptors in each category).

If a project includes rail transportation or construction activities such as blasting, pile-driving, or operating heavy earth-moving equipment, the study area may need to be expanded to assess potential vibratory effects on nearby buildings (especially historic structures and locations with sensitive equipment, such as hospitals and universities) and wildlife. These types of vibration may affect structures to a distance of approximately 1,000 feet or more.

8.14.2 Resource Identification

The project's class of action is identified on the Probable Class of NEPA Action Form (NDOT-53) for the project, along with a determination of whether a noise analysis is warranted. The project description should also be reviewed to determine if the project requires noise analysis.

If a noise analysis is required, the following desktop resources are used to identify noise-sensitive receptors; however, these sources are not always up-to-date:

- Web-based aerial mapping sources, such as Google Earth (aerial photographs and street-level views)
- Aerial photographs on local government websites
- County GIS maps of property ownership
- Plat maps and building permits from the applicable local government unit
- City and county land use maps

After conducting a desktop review, field studies (a windshield or pedestrian survey) are then typically conducted to identify noise-sensitive receptors that cannot be identified from property ownership or are not visible on aerial photographs. After the receptors are identified, their addresses should be recorded, and the type of land use (such as commercial, residential, industrial, or public use) should be documented.

If vibration impacts need to be assessed, then historic structures and locations with sensitive equipment would be identified. Historic structures are identified in the historic structure surveys discussed in Section 8.8.2. Hospitals and universities can be identified using Google Earth, county GIS maps, and other sources. Upon identification, the hospitals and universities should be contacted to determine if they have sensitive equipment that could be affected by vibrations.

8.14.3 Analysis

Typically, projects requiring noise analysis are those for which more than one alternative is being considered; consequently, an EA or EIS would be used to document these projects. For Type I projects, a traffic noise analysis is required for all build alternatives carried forward for detailed study in the NEPA process.

Procedures outlined in FHWA's *Highway Traffic Noise: Analysis and Abatement Guidance* and the NDOT *Noise Analysis and Abatement Policy* are used to identify potential noise impacts. After the

presence of noise-sensitive receptors are identified and their appropriate land-use categories have been characterized, as discussed in Section 8.14.2, the land use for each receptor is classified according to activity categories described in the NDOT *Noise Analysis and Abatement Policy*, Attachment 1, Noise Abatement Criteria Table. The latest version of FHWA's Traffic Noise Model is then used to determine existing and predict future traffic noise levels. If noise levels are determined to approach or exceed NAC, or if future noise levels are predicted to substantially increase over existing noise levels, noise abatement measures must be considered and evaluated for feasibility and reasonableness. The NDOT *Noise Analysis and Abatement Policy* defines the terms approaching NAC, substantial increase, feasibility, and reasonableness.

Impacts that may occur at the same time and place as the proposed action or alternatives, such as potential relocation of noise-sensitive receptors or the potential to affect historic resources or threatened and endangered species by noise or vibration, should be identified. Impacts on noise and vibration that occur later in time or farther removed in distance from the proposed action or alternatives should also be identified, such as a change in land use or neighborhood character, an impact on wildlife that affects other species.

If a transportation project includes realignment or introduction of a rail line, the rail noise levels should be calculated using the procedure outlined in FHWA's *Advanced Prediction and Abatement of Highway Traffic Noise* (June 1982). Impacts from railroad projects (other than high-speed rail) or transit noise and vibration would be determined using FTA's procedures in the *Transit Noise and Vibration Impact Assessment* Manual (September 2018). Noise and vibration impacts from high-speed rail projects should be assessed using FRA's *High-Speed Ground Transportation Noise and Vibration Impact Assessment* (September 2012).

In the event of potential vibration impacts on historic structures, the environmental analyst must determine if there would be a constructive use of a Section 4(f) property (see Section 8.10, Section 4(f)) or an adverse effect on a historic structure (see Section 8.8, Historic Properties). Potential vibration effects on wildlife and threatened and endangered species should also be assessed.

8.14.4 Resource Agency Coordination

The results of any noise study completed must be shared with city and county officials, as applicable. Information shared with local officials includes the best estimation of future noise levels (for various distances from the transportation improvements) for developed and undeveloped lands and properties in the immediate vicinity of the transportation facility. That information may be useful to local communities to protect future land development from becoming incompatible with anticipated noise levels.

Potential adverse vibration effects on historic structures would require consultation with the Nebraska SHPO and any other applicable consulting party.

8.14.5 Avoidance, Minimization, and Mitigation

For a Type I project, NDOT must do the following:

- Identify and document noise abatement measures that are feasible and reasonable and are likely to be incorporated in the project.
- Identify impacts for which no noise abatement appears feasible and reasonable.
- Identify noise mitigation options.
- If sufficient design information is not available, include a mitigation measure to complete the noise analysis and abatement process prior to plans, specifications, and estimates for construction.

Avoidance of noise and vibration impacts would include such measures as traffic management, alteration of alignment, or purchase of land for use as a buffer zone. For Type I projects, noise abatement measures shall be considered and evaluated for feasibility and reasonableness where predicted traffic noise levels approach or exceed the NAC, or when the predicted traffic noise levels substantially exceed the existing noise levels. In abating traffic noise impacts, NDOT shall give primary consideration to outdoor areas of frequent human use. When considering abatement measures, NDOT factors the costs and effects of each abatement measure against the amount of benefit. Even if found feasible for a particular area, noise abatement may not be reasonable and would not be applied.

The primary traffic noise abatement measures are noise barriers. Construction noise mitigation measures include design considerations, community awareness, source control, site control, and time and activity constraints.

If vibration would potentially affect historic structures, protective measures must be developed to avoid an adverse impact. The standard mitigation is to require the contractor to use seismic monitoring equipment and to monitor vibrations to verify that peak particle velocity is below industry-accepted thresholds.

8.14.6 Documentation

A noise study report documents the findings and conclusions of the noise study, as well as noise abatement measures considered and whether noise abatement measures are feasible and reasonable. Results of the noise study are summarized in the NEPA documentation. Public involvement activities, as well as public concerns, public comments, and responses to public comments on project noise impacts and NDOT's noise abatement measures, must be documented in the project NEPA documentation. Agency coordination should also be documented in the NEPA documentation.

8.14.7 Laws, Regulations, and Guidance

Laws, regulations, and guidance pertaining to noise and vibration include, but are not limited to, the following:

- 23 CFR 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise
- 23 USC 101 et seq., Federal-Aid Highway Act of 1970
- 42 USC 4901 et seq., Noise Control Act of 1972
- FHWA, June 1982, *Advanced Prediction and Abatement of Highway Traffic Noise*
- FHWA, December 2011, *Highway Traffic Noise: Analysis and Abatement Guidance*
- FHWA, May 2017, *Evaluation of 23 CFR 772 for Opportunities to Streamline the Noise Study Process*
- FRA, September 2012, *High-Speed Ground Transportation Noise and Vibration Impact Assessment*
- FTA, September 2018, *Transit Noise and Vibration Impact Assessment Manual*
- NDOT, April 2024, *Noise Analysis and Abatement Policy*
- NDOT, April 2024, *Traffic Noise Analysis Guidance Manual*

8.15 Hazardous Materials

Hazardous materials are defined as substances that—because of their quantity, concentration, or physical, chemical, or infectious characteristics—may present a threat to public health or the environment. Hazardous materials are regulated by EPA and other federal and state agencies under the Toxic Substances Control Act of 1976 (15 USC 2601 et seq.); the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 USC 9601 et seq.); the Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.); the Superfund Amendments and Reauthorization Act of 1986; and the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 355). Nebraska Administrative Code Title 128, Nebraska Hazardous Waste Regulations, regulates hazardous wastes in the state.

Identifying the potential for existing hazardous materials to impact a transportation project is an integral step of the advanced planning and NEPA documentation stages of project development. NDOT uses the Hazardous Materials Review (HMR) process outlined in the *NDOT Hazardous Material Review Guidance Manual* (NDOT HMR Guidance) to identify sites that are known to be, or may potentially be, contaminated with hazardous materials. NDOT defines hazardous materials as a broad category of materials that, because of their quantity, concentration, or physical or chemical characteristics, may pose a potential hazard to human health and safety, or to the environment if released. Hazardous materials, by NDOT definition, include, but are not limited to, materials that are regulated as solid waste, hazardous waste, and other wastes contaminated with hazardous substances, radioactive materials, petroleum fuels, toxic substances, pollutants, and other regulated materials.

8.15.1 Study Area

The HMR study area is consistent with the environmental database search distances detailed in the NDOT HMR Guidance, Section 4.1.1, and extends approximately 0.10 mile to 1 mile beyond the project. The search distance for linear transportation projects generally extends from the existing or proposed ROW (temporary or permanent). Otherwise, the search distance is from the project centerline or edge-of-pavement, as defined for the review. The search distance for bridge projects generally extends from the center of the bridge or bridge abutments.

8.15.2 Resource Identification

Hazardous materials in the HMR study area are identified using a combination of agency environmental databases, desktop resources (including aerial photography), and visual observation. Applicable agency environmental databases are listed and described in the NDOT HMR Guidance, Table 4.1, along with the approximate minimum search distance for each database. In addition, the NDOT HMR Guidance, Appendix B, provides a list of agency resources, including agency environmental databases in Nebraska. If an NDOT project with identified hazardous material concerns crosses the Nebraska state line, then coordination with the other state or states must occur to determine which regulations and guidance apply. Other state agency environmental databases may be accessed in these situations.

Most projects require a visual reconnaissance, which is generally limited to areas visible from public ROW. The NDOT HMR Guidance, Appendix C, provides detailed visual reconnaissance guidance, including descriptions of items that may be identified during the visual reconnaissance, such as storage tanks, electrical equipment, and surface staining.

8.15.3 Analysis

NDOT has three primary project types that require varying levels of HMR analysis, as follows:

- Pavement preservation projects are excluded from review of potential hazardous materials issues.
- Resurfacing, restoration, and rehabilitation (3R) projects typically require an HMR for site-specific projects, as described in the NDOT HMR Guidance, Section 4.1. In some instances, as noted in the NDOT HMR Guidance, Section 3.3.2, a 3R project can be exempt from an HMR analysis.
- New and reconstructed projects may require an HMR for site-specific projects, as described in the NDOT HMR Guidance, Section 4.1, or an HMR for projects with in-depth alternatives analysis, as described in the NDOT HMR Guidance, Section 4.4.2.

HMRs for site-specific projects are used to identify the potential for encountering contamination during construction, and to determine whether materials management or worker health and safety, or both, may be impacted. The HMR findings are categorized into three groups: low, medium, and high potential to encounter contamination during construction, as defined in the NDOT HMR Guidance, Chapter 4.

HMRs for projects with in-depth alternatives analysis are used to evaluate and manage the probability and severity of hazardous material impacts related to alternative selection. These HMRs include a site screening process for risk assessment to identify sites that may need further screening based on the potential to have contamination that could impact the project. Once contaminated sites have been identified, they are assigned a low, medium, or high-risk ranking, as defined in the NDOT HMR Guidance, Section 4.4.2.1, based on the information collected. Then findings and recommendations are documented for each identified site.

In some instances, the findings of the HMR indicate the need for a subsurface investigation. NDOT will determine the timing of the subsurface investigation. If warranted, subsurface investigations should be conducted prior to completion of the NEPA documentation and incorporated in the HMR report. Subsurface investigations are discussed in greater detail in the NDOT HMR Guidance, Section 4.3.

8.15.4 Resource Agency Coordination

NDOT will coordinate as necessary with DWEE as the primary resource agency when a contaminated site has the potential to impact, or be impacted by, project construction. For multi-state projects, NDOT would coordinate with the applicable state department(s) of transportation to determine if any coordination is needed with other state agencies. For bridge projects where asbestos is identified, coordination with the Nebraska Department of Health and Human Services is warranted.

8.15.5 Avoidance, Minimization, and Mitigation

Project-specific commitments and mitigation measures are intended to avoid contaminated sites if possible, and to protect worker and public health and safety where contaminated sites cannot be avoided. The findings and the commitments and mitigation measures stemming from any subsurface investigations should be summarized in the NEPA documentation.

Examples of project-specific commitments and mitigation measures are provided in the NDOT HMR Guidance, Appendix D. Commitments and mitigation measures may be added or modified based on project-specific conditions and should be discussed with an NDOT PQS when a project is anticipated to be impacted by a contaminated site.

8.15.6 Documentation

The HMR findings should be documented in a report and attachments. The HMR report should include documentation to support the categorization of each identified site as having a low, medium, or high

potential to encounter contamination during construction. Identified sites discussed in the HMR report should be shown in a figure in the report or an attachment. Any additional analysis that was conducted to further evaluate identified sites should be documented in the HMR report. Photographs should be taken during site visits and documented in a log, and a site reconnaissance form should be completed. These materials and field notes are to be included in the project file (see Chapter 3, Project Development and Documentation). Examples for documenting site information and impact conclusions are provided in the NDOT HMR Guidance, Section 4.4. The HMR findings and the commitments and mitigation measures should be summarized in the NEPA documentation.

8.15.7 Laws, Regulations, and Guidance

The following federal and state laws, regulations, and guidance pertain to hazardous and regulated materials, and are discussed in the NDOT HMR Guidance, Chapter 2:

- 29 CFR 1910, Occupational Safety and Health Standards
- 29 CFR 1926, Safety and Health Regulations for Construction
- 40 CFR 141, National Primary Drinking Water Regulations
- 40 CFR 312, Innocent Landowners, Standards for Conducting All Appropriate Inquiries
- 40 CFR 355, Emergency Planning and Community Right-to-Know Act of 1986
- 15 USC 2601 et seq., Toxic Substances Control Act of 1976
- 42 USC 300f et seq., Safe Drinking Water Act of 1974
- 42 USC 6901 et seq., Resource Conservation and Recovery Act of 1976
- 42 USC 9601–9675, Comprehensive Environmental Response, Compensation, and Liability Act
- ASTM E1527-21, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process
- EPA, August 13, 2025, Resource Conservation and Recovery Act (RCRA) Regulations
- FHWA, August 5, 1988, *Interim Guidance – Hazardous Waste Sites Affecting Highway Project Development*
- FHWA, January 16, 1997, *Supplemental Hazardous Waste Guidance*
- Neb. Rev. Stat. Section 46-1501 to 46-1509, Wellhead Protection Area Act
- Nebraska Administrative Code, Title 117, Nebraska Surface Water Quality Standards
- Nebraska Administrative Code, Title 118, Ground Water Quality Standards and Use Classification
- Nebraska Administrative Code, Title 126, Rules and Regulations Pertaining to the Management of Wastes
- Nebraska Administrative Code, Title 128, Nebraska Hazardous Waste Regulations
- Nebraska Administrative Code, Title 132, Integrated Solid Waste Management Regulations

8.16 Floodplains

The Federal Emergency Management Agency (FEMA) National Flood Insurance Program requires communities to manage development within designated floodplains to limit increases of the 100-year flood elevation. In complying with this requirement, NDOT recognizes the following definitions:

- Floodplains are lowland areas that are periodically inundated by floodwaters. For purposes of this Manual, "floodplain" is synonymous with the base floodplain or 100-year floodplain (that is, those areas subject to inundation by the 1 percent annual chance flood).
- Regulatory floodway is the area within the floodplain that is reserved for conveyance of the 100-year flood.
- Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk and types of flooding. These zones are depicted on Flood Insurance Rate Maps or Flood Hazard Boundary Maps.

EO 11988, Floodplain Management, directs federal agencies to avoid long- and short-term adverse impacts associated with modifying floodplains.

Specific to highway projects, FHWA prescribes policies and procedures for the location and design of highways within floodplains (23 CFR 650 Subpart A). It is the policy of FHWA and NDOT to:

- avoid longitudinal encroachments[4] where practicable;
- avoid significant encroachments where practicable;
- minimize impacts of highway agency actions that adversely affect the base floodplain;
- be consistent with the intent of the standards and criteria of the National Flood Insurance Program, where appropriate;
- incorporate "A Unified National Program for Floodplain Management" of the Water Resources Council into FHWA procedures.

8.16.1 Study Area

The study area for floodplains is limited to the project alignment and preliminary impact area.

8.16.2 Resource Identification

FEMA Flood Insurance Rate Maps are reviewed to identify floodplain and floodway designations within the study area. This is accomplished by overlaying the project alignment or preliminary impact area files on mapped floodplain boundaries. If the area is currently being mapped, does not have regulatory floodplain boundaries, or has outdated floodplain information, the Nebraska Department of Natural Resources website should be consulted to see if flood awareness areas are available through digital work maps. In some instances, such as when a county does not participate in the National Flood Insurance Program, an area may not be mapped for floodplains. In this instance, Nebraska Administrative Code, Title 455, Chapter 1, which defines floodplain areas, will be applied in lieu of FEMA floodplain maps.

[4] A longitudinal encroachment is an action within the limits of the base floodplain that is parallel to the direction of flow (for example, a highway that runs alongside a stream and that includes a fill slope that extends laterally into the floodplain).

8.16.3 Analysis

If a project is within the boundaries of a base floodplain or a regulatory floodway, early coordination should occur with the NDOT Roadway Design Hydraulics Unit, Bridge Hydraulics Unit, or Local Assistance Division for a preliminary determination of impacts. Although final floodplain certification and permitting generally occur during the final design phase of project development, the document author should obtain adequate preliminary information concerning potential floodplain impacts by referencing the PQS Floodplain Memo.

For all alternatives containing encroachments and for those actions that would support base floodplain development, a Location Hydraulic Study is prepared by the NDOT Roadway Design or Bridge Division or by the LPA during the preliminary design phase of the project. In accordance with 23 CFR 650.111(c) and the NDOT *Drainage Design and Erosion Control Manual*, Appendix S, Floodplain Policy, the following items are included in the Location Hydraulic Report:

- Flooding risks associated with the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development (that is, any development that is not consistent with a community's floodplain development plan)
- Measures to minimize floodplain impacts
- Measures to restore and preserve natural and beneficial floodplain values

When an EA or an EIS is being prepared and an alternative is identified that (1) results in a floodplain encroachment, or (2) supports incompatible floodplain development having significant impacts, or (3) requires a commitment to build a particular structure size or type, the NEPA documentation must include an evaluation and discussion of practicable alternatives to any longitudinal encroachment (23 CFR 650.111(b)). The evaluation must also include a preliminary analysis of whether the encroachment would be consistent with, or require a revision to, the regulatory floodway. If a floodway revision is necessary, the NEPA documentation must include documentation from FEMA and the local floodplain administrator that the revision is acceptable.

A project that involves a "significant encroachment" on a floodplain will not be approved unless the encroachment is the only practicable alternative. Significant encroachment means a highway encroachment and any direct support of likely base floodplain development that would involve one or more of the following construction or flood-related impacts:

- A significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route
- A significant risk
- A significant adverse impact on natural and beneficial floodplain values

If a project would result in adverse effects on floodplains, additional public involvement and notification are required. NDOT's Public Involvement Procedures also require disclosing the adverse impacts in the public notice announcing the availability of the project's EA or EIS. Chapter 9, Public Involvement Procedures, provides additional information.

8.16.4 Resource Agency Coordination

Floodplains and floodways are regulated at varying levels. Most NDOT coordination activities occur at the local level, where floodplain administrators act on behalf of a county, city, or village that participates in the National Flood Insurance Program, and the floodplain administrators regulate

floodplain development activities via ordinances and permits. Local coordination includes NDOT or LPA submittal of a floodplain development permit application and associated floodplain certificate (if needed).

When a project prompts a floodplain map change, NDOT coordinates (or helps the LPA to coordinate) with the Nebraska Department of Natural Resources and presents or assists with supporting hydraulic study findings. As a Cooperating Technical Partner to FEMA, the Nebraska Department of Natural Resources delineates floodplains, provides technical assistance to local floodplain administrators, and generally acts as the state liaison to FEMA. NDOT and LPAs do not coordinate directly with FEMA. NDOT provides the public an opportunity to comment on the project improvements when a project requires a map revision.

8.16.5 Avoidance, Minimization, and Mitigation

All NDOT and LPA projects make efforts to achieve the following:

- Avoid incompatible floodplain development.
- Minimize highway actions that adversely affect the base floodplain.
- Restore and preserve the natural and beneficial floodplain values.
- Be consistent with the standards and criteria of the National Flood Insurance Program.

Prior to construction within a 100-year floodplain or within a regulatory floodway, NDOT (or the LPA on an LPA project) receives both a floodplain certification from a professional engineer and a floodplain development permit from the local floodplain administrator. Floodplain certification affirms that the project conforms to floodplain regulations and may be subject to specific commitments, potentially including the construction of a particular water conveyance structure size or type, or flood storage excavation to offset floodplain fill activities.

If a project occurs in a community that does not participate in the National Flood Insurance Program and therefore is not mapped for floodplains, and the project crosses potential 100-year floodplains, Nebraska's minimum standards for floodplain management (Nebraska Administrative Code, Title 455, Chapter 1) would apply, but a floodplain development permit would not be required. Nebraska's minimum standards (Nebraska Administrative Code, Title 455, Chapter 1) state that no construction, improvement, or obstruction shall be allowed in the floodplain unless it is demonstrated that the effect of the construction, improvement, or obstruction will increase the water surface elevation of the base (100-year) flood by 1 foot or less for a base floodplain and must show no rise for a regulatory floodway.

8.16.6 Documentation

Floodplain documentation requirements are as follows:

- Floodplain PQS Memorandum: NDOT memo that identifies whether the project would cross floodplain(s) and/or floodways; floodplain and/or floodway impacts; floodplain encroachments other than functionally dependent use; and the required components of the Location Hydraulic Study, if needed. If no floodplains occur on a project, an email stating that condition may replace the PQS memo.
- Location Hydraulic Report: A study, prepared in the permitting or design phase, that addresses flood risks, floodplain impacts, support of incompatible floodplain development, minimization measures, and restoration and preservation measures.

- Floodplain Certification or Determination of No Impact: Affirmation from a professional engineer that the project conforms to applicable floodplain regulations.
- Floodplain Development Permit Application: Application form or package provided to the local floodplain administrator when requesting floodplain development permit authorization. The application may include a floodplain certification or determination of no impact.
- Floodplain Development Permit: Permit authorization, provided by the local floodplain administrator that affirms project conformance with applicable floodplain regulations.

8.16.7 Laws, Regulations, and Guidance

Laws, regulations, and guidance pertaining to floodplains and floodways include, but are not limited to, the following:

- 23 CFR 650, Subpart A, Location and Hydraulic Design of Encroachments on Flood Plains
- 42 USC 4001 et seq., National Flood Insurance Act of 1968 and Flood Disaster Protection Act of 1973
- EO 11988, Floodplain Management (42 FR 26951 [1977])
- EO 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input (80 FR 6425 [2015])
- FHWA, October 30, 1987, *Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents*
- NDOT, February 2021, *Drainage Design and Erosion Control Manual*, Appendix S, Floodplain Policy
- Nebraska Administrative Code, Title 455, Chapter 1, Rules and Regulations Concerning Minimum Standards for Floodplain Management Programs
- USDOT, April 23, 1979, *DOT Order 5650.2, Floodplain Management and Protection*

8.17 Water Quality

Construction, operation, and maintenance of NDOT's transportation facilities must comply with federal water quality regulations, including the Clean Water Act (CWA; 33 USC 1251 et seq.) and the Safe Drinking Water Act (42 USC 300f et seq.), as well as state regulations, including Nebraska Administrative Code, Title 117, Nebraska Surface Water Quality Standards; Nebraska Administrative Code, Title 118, Ground Water Quality Standards and Use Classification; and the Wellhead Protection Act (Nebraska Revised Statutes Section 46-1501 et seq.). Within NDOT, the Project Development Division's Roadside Development and Compliance Unit is primarily responsible for achieving and maintaining water quality compliance. Such compliance is in accordance with NDOT's *Drainage Design and Erosion Control Manual*, construction specifications and other procedures, which address construction-born pollutants and construction-related water supply impacts.

Although wetlands and streams provide recognized benefits to water quality, these resources are not discussed in this section. Discussion of these topics, including CWA Section 401 Water Quality Certification, is presented in Section 8.18, Wetlands and Water Resources, and is further detailed in NDOT's *Wetland and Water Resource Procedure Document*.

8.17.1 Study Area

For projects determined to be EAs or EISs, the study area for water quality includes impaired waters within 0.5 mile of the project centerline and termini, and groundwater wells and wellhead protection areas within 150 feet of the project ROW. Section 8.17.2 defines impaired waters. Projects documented with CEs are exempt from water quality review because activities associated with these projects are captured by NDOT *Standard Specifications for Highway Construction*, Sections 107.02(5) and 204. Additionally, project-specific commitments are included in the Stormwater Pollution Prevention Plan (SWPPP), if required.

8.17.2 Resource Identification

Defined broadly, impaired waters are those waters for which one or more beneficial uses (that is, recreation, aquatic life, water supply, and aesthetics) are impaired by one or more pollutants. Impaired waters are synonymous with DWEE-designated Category 5 Waterbodies and are identified by DWEE through the following multi-step process:

1. Assign beneficial uses of surface waters, as defined in Nebraska Administrative Code, Title 117, Nebraska Surface Water Quality Standards:
    a. Primary contact recreation
    b. Aquatic life – Coldwater A, Coldwater B, Warmwater A, Warmwater B
    c. Water supply – public drinking water, agricultural, and industrial
    d. Aesthetics
2. Compile water quality data and assess waterbody condition.
3. Identify waters for which existing, required pollution controls are not sufficiently stringent to maintain applicable water quality standards and to establish total maximum daily loads for the pollutants impairing those waters. This step is performed in accordance with CWA Section 303(d) (33 USC 1251 et seq.).

Impaired waters are listed by DWEE in its 303(d) List of Impaired Waters, which establishes total maximum daily loads for the pollutants impairing the waters. The 303(d) List is prepared every even-numbered year and is included in DWEE's bi-annual Integrated Report, which combines DWEE's 303(d) List of Impaired Waters and its 305(b) Water Quality Report. The 305(b) report describes the status and trends of existing water quality for all waters of the State and provides information regarding the extent to which beneficial uses are supported.

Groundwater wells are best identified and located using the Nebraska Department of Natural Resources' Groundwater Interactive Map.

Wellhead protection areas are best identified and located using DWEE's Interactive Mapping.

NDOT field studies are generally not required to identify water quality-related resources.

8.17.3 Analysis

Analysis for impaired waters is only required for EA and EIS projects. After impaired waters have been identified, the document author determines project-related water quality impacts. Water quality parameters considered include turbidity, nutrients, chemical content, physical and biological content, dissolved gas, pH, and temperature. If preliminary design information suggests that a project will disturb more than 1 acre of soil, the potential for the project to contribute to the identified impairments is assessed. If the project may add to the nature of the impairment, additional measures to avoid, minimize, or mitigate the potential impact should be included in the project.

8.17.4 Resource Agency Coordination

DWEE is the primary resource agency that NDOT coordinates with regarding all water quality considerations.

8.17.5 Avoidance, Minimization, and Mitigation

If preliminary design information suggests that a project will disturb more than 1 acre of soil, NDOT's Roadside Development and Compliance Unit develops a SWPPP and receives National Pollutant Discharge Elimination System (NPDES)[5] Construction Stormwater General Permit authorization from DWEE prior to construction. Included in the project contract are specifications related to the handling of spills during construction. For impaired waters, mitigation may be needed to comply with established water quality and total maximum daily load standard(s). SWPPP development, implementation, and maintenance is intended to minimize erosion and sedimentation to receiving waters, and includes information related to temporary and permanent best management practices (BMP) necessary to accomplish this. Commonly applied BMPs include vegetation establishment, along with various erosion and sediment control measures.

For projects that occur within a municipal separate storm sewer system (MS4) community, NDOT coordinates with the MS4 community and applies stormwater treatment requirements as determined through the process for Post Construction Stormwater Treatment evaluation. An MS4 community is a municipality with a population of 10,000 or greater, or a highly urbanized county. These communities are required to maintain a separate storm sewer system, defined as "a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains)" (40 CFR 122.26(b)(8)). The MS4 permit requires municipalities and counties to develop water quality programs in the areas of (1) public education and outreach, (2) public involvement, (3) construction site runoff control, (4) post-construction runoff control, (5) illicit discharge detection and elimination, and (6) good housekeeping. Because NDOT owns and maintains ROW and properties in MS4 communities, NDOT has developed a transportation-specific MS4 permit in coordination with DWEE.

Impacted groundwater wells are decommissioned and relocated outside of project ROW. Both decommissioning and relocation are performed in accordance with Nebraska Administrative Code, Title 178, Environmental Health. Construction in a wellhead protection area is subject to NDOT's *Standard Specifications for Highway Construction*, Sections 107.01, 107.09, and 107.16, which address the contractor's responsibility to keep fully informed of, observe, and comply with all federal, state, and local laws and ordinances that affect the conduct of the work.

Chapter 11, Environmental Commitment Compliance, discusses how environmental commitments, including BMPs and others specific to water quality, are inspected, documented, and tracked.

8.17.6 Documentation

Water quality documentation requirements are as follows:

- NPDES Construction Stormwater General Permit authorization: Authorizes the discharge of pollutants to receiving waters for construction projects that disturb over 1 acre of land. This authorization is provided by DWEE and is contingent on development, implementation, and maintenance of a project-specific SWPPP.

[5] CWA Section 402 establishes environmental programs, including the NPDES program, to protect the nation's waters.

- Notice of Intent: Form provided by NDOT to DWEE to introduce a project, transmit the project-specific SWPPP, and effectively request NPDES Construction Stormwater General Permit authorization. Notice of Intent must be provided to DWEE at least 7 days before grading begins.
- Notice of Termination: Form provided by NDOT to DWEE to signify project completion, site stabilization, and release from NPDES Construction Stormwater General Permit authorization.
- SWPPP: Combination of text and drawings intended to facilitate compliance with NPDES Construction Stormwater General Permit authorization. The SWPPP includes temporary and permanent BMPs and a Spill Prevention Control and Countermeasure Plan and is intended to minimize the release of construction site pollutants into receiving waters.

8.17.7 Laws, Regulations, and Guidance

The following laws, regulations, and guidance pertain to water quality:

- 33 USC 1251 et seq., Clean Water Act of 1972
- 42 USC 300f et seq., Safe Drinking Water Act of 1974
- NDOT, April 2020, *Wetland and Water Resource Procedure Document*
- NDOT, 2024, Stormwater Management Plan
- NDOT, February 2024, *Drainage Design and Erosion Control Manual*
- Nebraska Administrative Code, Title 117, Nebraska Surface Water Quality Standards
- Nebraska Administrative Code, Title 118, Ground Water Quality Standards and Use Classification
- Nebraska Administrative Code, Title 178, Environmental Health

8.18 Wetlands and Water Resources

NDOT staff evaluate the following wetland and water resource considerations during project planning and NEPA analysis; these considerations may influence project development, design, and any necessary avoidance, minimization, and mitigation measures:

- Type, size, and location of wetlands and stream channels
- Type and extent of wetland and water resource impacts
- Federal versus state resource jurisdiction
- Type of anticipated CWA Section 404 permit authorizations

Wetlands are "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328). Wetlands are protected for the values they provide to water quality and supply, flood storage, wildlife habitat, recreation, and education.

As defined in NDOT's *Wetland and Water Resource Procedure Document*, water resources are non-wetland aquatic resources, such as stream channels, rivers, ponds, or lakes. Human-made aquatic resources are included on a case-by-case basis; therefore, such resources should be identified and documented during resource identification activities.

A water of the US is defined as "the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; tributaries, lakes and ponds, and impoundments of jurisdictional waters; and adjacent wetlands" (33 CFR 328.3(a)). Waters of the State are defined as "all waters within the jurisdiction of this state, including all streams, lakes, ponds, impounding reservoirs, marshes, wetlands, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, situated wholly or partly within or bordering upon the state" (Nebraska Administrative Code Title 126, Chapter 1).

8.18.1 Study Area

The study area for wetlands and water resources will vary depending on the type of project, the anticipated level of NEPA documentation, and whether a flume, culvert, or bridge is present in a specific location. The study area length generally extends up to 0.5 mile beyond project termini. The study area width generally extends to the existing ROW on both sides of the road. At bridges and culverts, the study area width extends 150 feet beyond the existing ROW.

8.18.2 Resource Identification

Wetlands and water resources are identified using various methods ranging from desktop reviews to in-the-field wetland determinations and delineations. All resource identification methods are detailed in NDOT's *Wetland and Water Resource Procedure Document*. In accordance with US Army Corps of Engineers (USACE) guidance, field studies should occur during the growing season, generally defined in Nebraska as May 1 to November 1. When wetlands are identified, they are classified by type according to nationally recognized (Cowardin) and state-specific (Nebraska Wetland Subclass) classification procedures.

8.18.3 Analysis

Permanent and temporary impacts on wetlands and water resources are determined in order to identify possible CWA Section 404 permitting, notification, and mitigation requirements. Permanent impacts cause a permanent loss in resource area and function, while temporary impacts are typically limited to the construction period and are restored to pre-project conditions after construction is completed. Impacts are typically calculated by a roadway designer in applicable design software and account for all grading activities, new and extended water conveyance structures, construction access accommodations, and stormwater BMPs. Impact calculations are provided to the document author by the roadway designer in the form of a Waterway Permit Datasheet (NDOT-290).

Most NDOT projects that discharge fill in aquatic resources are authorized by USACE Nationwide Permits. When compared to a USACE Individual Permit, Nationwide Permit authorization requires a less-detailed permit application and shorter USACE processing time (approximately 90 days). For these reasons, Nationwide Permit authorization is preferred. Commonly applied Nationwide Permits (NWP) are the following:

- NWP 3: Maintenance
- NWP 14: Linear Transportation Projects
- NWP 23: Approved Categorical Exclusions

More intensive aquatic resource impacts may require an Individual Permit. In addition to Nationwide Permit application contents, Individual Permit applications require alternatives analysis and adjacent property owner contact information, which is necessary to support USACE public notice of the project.

Depending on funding source and which federal agency is the NEPA lead, Individual Permit applications may also require environmental analysis beyond aquatic resources to support NEPA. The Individual Permit process typically takes 4 to 12 months and requires that the applied-for project is the least environmentally damaging practicable alternative (LEDPA) in accordance with CWA Section 404(b)(1).

If a project would result in adverse effects on wetlands, additional public involvement and notification are required. NDOT's Public Involvement Procedures also require disclosing the adverse impacts in the public notice announcing the availability of the project's EA or EIS. Chapter 9, Public Involvement Procedures, provides additional information.

If a project would result in adverse effects on water resources that are not regulated under CWA Section 404 (resources that are not waters of the US, as defined in 33 CFR 328.3), coordination may be required with DWEE in accordance with Nebraska Administrative Code, Title 117, Nebraska Surface Water Quality Standards.

8.18.4 Resource Agency Coordination

As delegated by EPA, the USACE Omaha District Nebraska Regulatory Office is responsible for the day-to-day administration of CWA Section 404 and Rivers and Harbors Appropriation Act of 1899 Section 10 for NDOT. USACE's responsibility includes processing permit applications and issuing authorizations to discharge dredged or fill material, or both, into waters of the US. Most of NDOT's agency coordination for wetlands and water resources is with USACE. This coordination occurs through regular, standing meetings as well as project-specific meetings.

Although direct coordination with EPA is uncommon, EPA is charged with developing and interpreting environmental criteria used in evaluating CWA Section 404 permit applications, identifying activities that are exempt from permitting, reviewing, and commenting on Individual Permit applications, and enforcing CWA Section 404 provisions. EPA also "has authority to prohibit, deny, or restrict the use of any defined area as a disposal site (Section 404(c))" (EPA 2025).

In accordance with Nebraska Administrative Code, Title 117, Nebraska Surface Water Quality Standards, and CWA Section 401 (33 USC 1251 et seq.), DWEE can review and approve, condition, or deny all federal permits (including CWA Section 404 authorizations) or licenses that may result in a discharge to state waters, including wetlands. Approval is provided in the form of CWA Section 401 Water Quality Certification, which confirms that a proposed discharge would comply with applicable water quality standards, effluent limitations, new source performance standards, toxic pollutant requirements, and other water resource requirements of state law or regulation.

Also in accordance with the Antidegradation Clause in Chapter 3 explains DWEE's authority over all activities that have the potential to degrade waters of the State (including streams, lakes, and wetlands) regardless of federal jurisdiction. When a highway improvement project results in impacts on waters of the State that are not regulated by CWA Section 404 (including isolated wetlands), NDOT may request a Letter of Opinion from DWEE, which would formalize DWEE's determination on whether a proposed project would violate Nebraska Surface Water Quality Standards (Title 117). Letter of Opinion requests are generally in letter format and outline the project and resulting Title 117 impacts. If applicable, the request may also specify and differentiate Section 404 jurisdictional impacts and notify DWEE of USACE / Section 404 coordination efforts.

8.18.5 Avoidance, Minimization, and Mitigation

In planning transportation improvement projects, NDOT may avoid or minimize known or delineated wetland and water resource impacts through coordination among members of the multidisciplinary project team. Examples of avoidance and minimization measures include the implementation of

steeper embankment side slopes and retaining walls intended to minimize the roadway footprint and associated resource impacts. Wetlands and water resources that are not permitted for impact are labeled on the design plan set "E" sheet series. During construction, NDOT minimizes sedimentation by applying BMPs.

When federally jurisdictional wetland impacts exceed 0.10 acre at a single location or when USACE determines that wetland impacts should be assessed cumulatively, NDOT provides compensatory mitigation. Compensatory mitigation may also be required by DWEE when its Letter of Opinion specifies its necessity to avoid water quality violation. The allocation of credit(s) from one of NDOT's wetland mitigation banks is generally the preferred compensatory mitigation method. Where mitigation bank credit allocation is either unavailable or undesirable, NDOT may implement permittee-responsible mitigation in the form of wetland or stream, or both, mitigation design, construction, and maintenance. The functions and values of all NDOT mitigation sites are protected in perpetuity through an appropriate real estate protective instrument. In accordance with EO 11990 (42 FR 26961 [1977]) and 23 CFR 777, NDOT has developed a Net Gain of Wetlands Standard Operating Procedure that tracks wetland mitigation against wetland impacts. The Net Gain of Wetlands Standard Operating Procedure results in an annual report that is provided to FHWA to document Net Gain of Wetlands for NDOT-administered federal-aid projects.

As further discussed in Chapter 11, Environmental Commitment Compliance, wetland mitigation requires multiple years of successful monitoring prior to USACE approval. Monitoring activities are performed by an NDOT Wetland Biologist or assigned consultant. Mitigation follows construction and is not included in NDOT's project program template.

8.18.6 Documentation

Wetland and water resource identification procedures, potential impacts, and permitting requirements are described in NDOT's NEPA documentation. The analysis is supported by the following documents, which are detailed in NDOT's *Wetland and Water Resource Procedure Document*:

- Wetland delineation documentation and geodatabase
- Waterway Permit Datasheet (NDOT-290)
- Nationwide Permit Pre-Construction Notification
- Individual Permit Application
- Letter of Opinion Request
- Compensatory Mitigation Plan

8.18.7 Laws, Regulations, and Guidance

Laws, regulations, and guidance pertaining to wetlands and water resources include, but are not limited to, the following:

- 23 CFR 771, Environmental Impact and Related Procedures
- 23 CFR 777, Mitigation of Impacts to Wetlands and Natural Habitat
- 33 CFR 209, Administrative Procedure
- 33 CFR 320–332 and 334, Regulatory Program Regulations
- 33 CFR 323, Permits for Discharges of Dredged or Fill Material into Waters of the United States

- 33 USC 1251 et seq., Clean Water Act of 1972
- 33 USC 401 et seq., Rivers and Harbors Appropriation Act of 1899
- Cowardin et al., December 1979, *Classification of Wetlands and Deepwater Habitats of the United States*
- Environmental Laboratory, January 1987, *Corps of Engineers Wetlands Delineation Manual*
- Environmental Laboratory, March 2010, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)*
- Environmental Laboratory, August 2010, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)*
- EO 11990, Protection of Wetlands (42 FR 26961 [1977])
- NDOT, April 2020, *Wetland and Water Resource Procedure Document*
- Nebraska Administrative Code, Title 117, Nebraska Surface Water Quality Standards
- USACE, October 1, 2016, *Nebraska Stream Condition Assessment Procedure (NeSCAP)*
- USDA NRCS, September 2015, *Part 650 Engineering Field Handbook*, Chapter 19, Hydrology Tools for Wetland Identification and Analysis
- USDOT, August 24, 1978, *DOT Order 5660.1A, Preservation of the Nation's Wetlands*

8.19 Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968 (16 USC 1271 et seq.) established the National Wild and Scenic Rivers System to preserve rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the benefit and enjoyment of present and future generations. Rivers may be designated by Congress or, if certain requirements are met, by the Secretary of the US Department of the Interior. The National Wild and Scenic Rivers System is administered by the Interagency Wild and Scenic Rivers Coordinating Council, which includes representatives of BLM, NPS, USFWS, and the US Forest Service. These agencies are referred to as river-administering agencies. In Nebraska, the only river-administering agencies are NPS and USFWS. A river designated for its scenic or recreational values is likely also protected under Section 4(f) of the USDOT Act of 1966. Two rivers are designated as Wild and Scenic Rivers in Nebraska: the Missouri National Recreational River and the Niobrara National Scenic River. Both of these designated rivers have identified boundaries (Interagency Wild and Scenic Rivers Coordinating Council 2025).

NPS also compiles and maintains the Nationwide Rivers Inventory (NRI), which is a list of "free-flowing river segments in the United States that are believed to possess one or more 'outstandingly remarkable' natural or cultural values judged to be" of more than local or regional significance (NPS 2024). There are nine NRI-listed segments on six waterways in Nebraska (NPS 2024). The nine NRI-listed waterways are identified in the NDOT *Resource Analysis Guidance – Wild and Scenic Rivers*, Table 2. The rivers listed on the NRI are found eligible or suitable for the National Wild and Scenic Rivers System through federal agency planning processes but are not protected by the Wild and Scenic Rivers Act. Instead, an August 2, 1979, presidential memorandum requires that "Each federal agency shall, as part of its normal planning and environmental review processes, take care to avoid or mitigate adverse effects on rivers identified" in the NRI compiled by NPS (Carter 1979). Further, all agencies are required to consult with NPS prior to taking actions that could effectively foreclose wild, scenic, or recreational status for rivers listed in the NRI (CEQ 1980; NPS 2024).

8.19.1 Study Area

For Wild and Scenic Rivers, the study area is defined as the Wild and Scenic River's designated boundaries, which generally average 0.25 mile on either bank. For NRI-listed waterways, the study area is defined as 0.25 mile on either side of the river centerline.

8.19.2 Resource Identification

The Interagency Wild and Scenic Rivers Coordinating Council maintains a website listing the designated rivers and boundaries at https://www.rivers.gov. NDOT should identify whether the project occurs within the Wild and Scenic River's bed and banks (that is, below the ordinary high water mark [OHWM]) and/or above the bed and banks, but still within the river's designated boundaries. NPS maintains a map of the NRI-listed waterways at https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm.

8.19.3 Analysis

The Wild and Scenic Rivers Act defines a water resources project as any federally assisted construction that would affect free-flowing characteristics, as defined in Section 16(b) of the Wild and Scenic Rivers Act (16 USC 1286(b)). This definition includes bridge and other roadway construction/reconstruction projects, as well as bank stabilization projects, channelization projects, or dredge and fill projects that require a Section 404 permit (33 USC 1344). If a water resources project occurs within the bed and banks (that is, below the OHWM) of a Wild and Scenic River, direct and adverse effects must be evaluated under Section 7 of the Wild and Scenic Rivers Act (Interagency Wild and Scenic Rivers Coordinating Council 2017). This evaluation analyzes whether or not the preferred alternative would cause direct and adverse effects on the natural, cultural, or recreational outstandingly remarkable values for which the segment was designated. The analysis is prepared in accordance with the October 2004 guidance from the Interagency Wild and Scenic Rivers Coordinating Council.

If a water resources project occurs below the OHWM within a river's bed or banks upstream, downstream, or on any tributary to a designated river, the project's potential to "invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation of a river" must be evaluated (16 USC 1278(a)).

If a project occurs within the Wild and Scenic River's boundaries but there is no work below the OHWM, it should be assessed under Section 10(a) of the Wild and Scenic Rivers Act. The NDOT *Resource Analysis Guidance – Wild and Scenic Rivers* details the process for determining effects.

On a segment listed on the NRI, an evaluation is required as to whether a project could have an adverse effect on the natural, cultural, or recreational outstanding remarkable values for which the river segment is listed, when construction is proposed within 0.25 mile of the river. The associated evaluation must determine whether construction could foreclose future options to classify any portion of the NRI-listed river segment as wild, scenic, or recreational river areas.

8.19.4 Resource Agency Coordination

Following NDOT confirmation that a project triggers a Section 7 or Section 10(a) evaluation (a Section 7 evaluation is triggered for projects below the OHWM, and a Section 10(a) evaluation is triggered for projects within the Wild and Scenic River boundaries but outside of the OHWM), early coordination must occur with the appropriate river-administering agency (that is, NPS or USFWS). The river-administering agency is responsible for preparing the Section 7 determination on rivers under its administrative responsibility. However, upon mutual agreement between the river-administering agency and NDOT, NDOT may prepare a preliminary draft of the Section 7 evaluation for the river-

administering agency's use. NDOT should determine whether this approach is acceptable/desired during early agency coordination. In any case, the evaluation documentation must be finalized and accepted by the river-administering agency as its own.

The river-administering agency's determination of whether the project meets the standards of the Wild and Scenic Rivers Act is required before any federal permitting or funding action. The Section 7 determination is usually contained within a lead federal agency's environmental documentation, and may serve as a stand-alone document. The river-administering agency may require permits or other agency concurrences (for example, Section 106) to be obtained prior to construction. However, because the Section 7 determination is not a final federal action, it does not require a separate decision and analysis under NEPA. If a project has direct and adverse effects that cannot be avoided or eliminated, then the river-administering agency cannot consent to the project (Riddle 2020). The NDOT *Resource Analysis Guidance – Wild and Scenic Rivers* details the Section 7 process.

Coordination with the appropriate river-administering agency is applicable to all water resources projects that have the potential to impact a segment of a designated river.

For all water resources projects that have the potential to impact a river segment listed on the NRI, an NDOT NRI evaluation is required. NPS is generally available to help with consultation and with process and evaluation requirements regarding the evaluation of impacts on NRI-listed rivers. NDOT should contact NPS for assistance in the evaluation. For projects on federal lands, NPS recommends checking with the local land manager to verify that the segment is still considered eligible and/or suitable in their most recent land or resource management plan. If comments from NPS are not received within 30 days of initiating the consultation, the evaluation may proceed, as detailed in the NDOT *Resource Analysis Guidance – Wild and Scenic Rivers*.

8.19.5 Avoidance, Minimization, and Mitigation

NDOT should consider alternatives that avoid impacts on Wild and Scenic Rivers or NRI-listed rivers. In some cases, the impact is unavoidable. During coordination, the river-administering agency may make recommendations for minimizing impacts on designated Wild and Scenic Rivers and NRI-listed rivers. In addition to the recommendations or requirements proposed by the river-administering agency, on a case-by-case basis, NDOT should consider requiring the construction commitments and BMPs identified in the NDOT *Resource Analysis Guidance – Wild and Scenic Rivers* on Wild and Scenic Rivers; upstream, downstream, and tributaries to Wild and Scenic Rivers; and NRI-listed waterways.

8.19.6 Documentation

If the project requires NEPA evaluation in a CE or an EA, coordination with the river-administering agency is generally initiated through a letter from NDOT that informs the agency of the nature and location of the project and requests comment. NDOT should coordinate with the appropriate river-administering agency to determine what supporting information NDOT is to provide for the Section 7 evaluation. If a Section 10(a) evaluation is necessary, NDOT should provide information about the project to the appropriate river-administering agency for its discretionary review. Details on Section 7 documentation and Section 10(a) documentation are provided in the NDOT *Resource Analysis Guidance – Wild and Scenic Rivers*.

All communication with the river-administering agency should be documented and retained in the project file throughout the course of the coordination, including if the river-administering agency concludes that a Section 7 determination is not needed.

For an NRI-listed river, NDOT will prepare the NRI evaluation documenting whether the project could affect an NRI-listed segment or its outstanding remarkable values, and will submit it to NPS,

requesting NPS concurrence.[6] If NDOT's NRI evaluation determines that the project is not anticipated to adversely affect a river segment listed on the NRI, and NPS does not respond to a request for assistance within 30 days, NDOT may proceed with preparing and circulating its NEPA documentation or with its permit applications. Even where NPS has been unable to comment, NDOT is still obligated under the presidential directive to "take care to avoid or mitigate adverse effects on rivers identified in the Nationwide Inventory" (Carter 1979). Should NPS respond after the 30-day deadline, NDOT will address the comments.

8.19.7 Laws, Regulations, and Guidance

Laws, regulations, and guidance pertaining to wild and scenic rivers include, but are not limited to, the following:

- 36 CFR 297, Wild and Scenic Rivers
- 43 CFR 8350, Management Areas
- 16 USC 1271 et seq., Wild and Scenic Rivers Act of 1968
- BLM, July 13, 2012, Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, Planning and Management
- CEQ, 1980, *Procedures for Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers in the Nationwide Inventory*
- NPS, May 2015, *Director's Order #46: Wild and Scenic Rivers*
- NPS, April 12, 2021, *Reference Manual 46: Wild and Scenic Rivers*
- NPS, November 15, 2024, *Nationwide Rivers Inventory*
- NPS and USDA Forest Service, September 7, 1982, *National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification and Management of River Areas* (47 FR 39454-39461)
- USFWS, November 18, 2024, Wild and Scenic Rivers Policy

8.20 Fish, Wildlife, and Vegetation

Nebraska is home to numerous mammal, bird, reptile, amphibian, fish, invertebrate, and plant species (NGPC 2025). In relation to NDOT transportation projects, the term "fish and wildlife" denotes the aquatic (fish) and terrestrial (wildlife) species of interest along a project. Fish, wildlife, and vegetation are protected by several laws and regulations, as discussed below. Threatened and endangered species (a subset of all fish, wildlife, and plant species) and their associated habitat are addressed in Section 8.21.

The Fish and Wildlife Coordination Act (FWCA) supplements the CWA and applies to "any stream or other body of water" (16 USC 662(a)). The FWCA aims to ensure that fish and wildlife resource issues and opportunities are brought to the attention of project decision makers and given equal consideration in project planning. The FWCA directs consultation with USFWS and the state wildlife resources agency, which in Nebraska is NGPC (USFWS 2004).

[6] For unassigned projects, NDOT would prepare the evaluation and consultation under the direction of FHWA. FHWA may elect to perform the consultation with other federal agencies themselves.

The Bald and Golden Eagle Protection Act (BGEPA) prohibits take of eagles, including their parts, nests, or eggs, without the proper permit.

The Migratory Bird Treaty Act (MBTA) protects bird species under four international treaties: these treaties are between the US and each of the following countries: Canada, Japan, Mexico, and Russia. The MBTA protects all birds native to North America with the exception of non-migratory upland game birds (for example, quail, grouse, pheasant, and turkey) and four non-native species (that is, house sparrow, European starling, feral rock pigeon, and Eurasian collared doves).

The Endangered Species Act (ESA) and the Nebraska Nongame and Endangered Species Conservation Act (NESCA) protect threatened and endangered species, as discussed in Section 8.21.

The Nebraska Natural Legacy Project is Nebraska's state wildlife action plan for conserving Nebraska's flora, fauna, and natural habitats (Forehead et al. 2025). The plan also identifies Tier I (listed threatened or endangered species or candidate species) and Tier II (species of concern) at-risk species, as well as biologically unique landscapes.

The *Nebraska Biological Evaluation Process for the Federal-Aid Transportation Program*, as amended, provides "an efficient, consistent, streamlined approach to regulatory compliance for fish, wildlife, and plant resources in Nebraska by implementing a standardized analysis, documentation, and concurrence procedure for use by the participating agencies for constructing and improving transportation facilities with a nexus to [FHWA]" (FHWA, USFWS, NDOT, and NGPC 2023).

Noxious weeds are typically non-native, invasive species that are detrimental to natural ecosystems. Several regulations and guidelines have been issued to help limit the spread of noxious weeds, including EO 13112, Invasive Species; the Nebraska Noxious Weed Control Act (Nebraska Revised Statutes Sections 2-945.01 to 2-970); and the Nebraska Noxious Weeds Regulations (Nebraska Administrative Code, Title 25, Chapter 10).

8.20.1 Study Area

The action area extends 1.1 miles from the centerline of the roadway. This distance represents the greatest likely extent of effects on species and critical habitat.

8.20.2 Resource Identification

Fish and wildlife resource reviews may also identify those species that are identified as a game species, are abundant in the project area, are considered predators, or have any other local value. Fish and wildlife are identified based on the presence of suitable habitat. Fish and wildlife habitat can typically be identified by reviewing the following desktop resources:

- Web-based aerial mapping sources, such as Google Earth
- *The Nebraska Natural Legacy Project: State Wildlife Action Plan* (2025)
- NGPC Public Access Atlas
- 2018 Nebraska Bald Eagle Nesting Report

Habitat assessments may be performed during project site visits. In addition, nest surveys for bald eagles and migratory birds may be required prior to construction.

Vegetation types commonly found throughout Nebraska are characterized according to the ecoregions and Biologically Unique Landscapes defined by the *Nebraska Natural Legacy Project*. Aerial imagery desktop review, wetland delineations, and other project site visits may also provide context for vegetative communities common in a given area. The Nebraska Department of Agriculture maintains a list of state-designated noxious weeds, but the list of weeds specifically designated at the

county level can vary. The County Weed Control Superintendent can provide the exact list for a specific county because some counties designate additional weeds not on the statewide list.

8.20.3 Analysis

Analysis of potential impacts on fish, wildlife, and vegetation varies based on the class of action. A CE primarily involves documentation of compliance with the FWCA, BGEPA, MBTA, ESA, and NESCA. An EA or EIS requires a more in-depth review of the fish and wildlife species and the vegetation communities present in the study area and the project's potential effect on those species, if any.

For most NDOT projects, compliance with the FWCA is reviewed as part of the *Nebraska Biological Evaluation Process for the Federal-Aid Transportation Program*, as amended, commonly referred to as the Matrix. (See Section 8.21, Threatened and Endangered Species, for a full description of the Matrix process.) If the project requires a CWA Section 404 permit from USACE or an NPDES permit from DWEE, the FWCA applies, and the project will be reviewed during the permitting process. If the project requires neither a CWA Section 404 nor an NPDES permit, the FWCA does not apply.

Compliance with BGEPA is reviewed based on the presence of suitable habitat for bald or golden eagles. Bald eagle habitat in Nebraska is found along wooded river corridors, lakes, and sandpits with the presence of large cottonwood trees for nesting and roosting. Golden eagle habitat is arid open country with grassland for foraging. Golden eagles nest on cliffs and rock outcroppings and avoid urban areas and dense forest habitat.

For most NDOT projects, suitable habitat for eagle nesting is reviewed as part of the Matrix project review process (FHWA, USFWS, NDOT, and NGPC 2023). The review ends in one of two determinations: (1) the project site does not have appropriate habitat for eagles, and there is no impact on these species; or (2) suitable habitat exists within 0.5 mile of the Project Study Area, and NDOT will use its protocols to determine when a survey for nests or roosts, or both, should be conducted. If a nest is present within 0.5 mile of the study area, NDOT notifies USFWS and NGPC, and construction does not commence prior to USFWS and NGPC approval.

Protected by the MBTA, migratory birds nest in a variety of habitats, and the timing of their nesting varies by species. NDOT identifies the primary nesting season as April 1 to September 1. Migratory birds can nest in trees, shrubs, and grasses, and on bridges and culverts.

To comply with the MBTA, NDOT has developed and implements its *Avian Protection Plan* on NDOT projects to reduce conflicts between construction and migratory birds.

Vegetation commonly observed along NDOT project corridors primarily consists of non-native, introduced species. Therefore, a robust assessment of potential project-related vegetative impacts is not necessary. More in-depth analysis may be required if any native, at-risk vegetative species are present in the Project Study Area.

8.20.4 Resource Agency Coordination

The Matrix process allows most resource agency coordination with USFWS and NGPC to be streamlined. For those projects that do not follow the Matrix process,[7] direct coordination with USFWS and NGPC is conducted. In addition, if a CWA Section 404 Individual Permit is required, coordination with USFWS under the FWCA occurs during the permitting process.

[7] Projects that do not follow the Matrix process include states-funds-only projects, which do not require NEPA analysis, and projects with new roadways on new alignments or new traffic interchanges that would open new areas for development, which are often addressed in an EA or EIS.

8.20.5 Avoidance, Minimization, and Mitigation

In general, NDOT attempts to avoid impacts on fish and wildlife through project design, project timing, and implementation of BMPs. Vegetative disturbance is unavoidable for most NDOT projects. However, revegetation in all disturbed areas includes using NDOT-approved native seed mixes that would improve plant species composition relative to the non-native, introduced species likely present. Furthermore, NDOT maintains a set of standard mitigation measures contractors must employ regarding the disposal of vegetation, site stabilization and revegetation, mulching, and cleaning equipment. All measures are intended to avoid the transfer or spread of noxious and invasive species.

NDOT developed its *Avian Protection Plan* to reduce conflicts with migratory birds during construction of all NDOT projects. This procedure is designed to protect and conserve avian populations and to reduce avian conflicts through changes in project scheduling (that is, tree clearing outside of the primary nesting period), increased migratory bird surveys, and changes in project construction timelines. The *Avian Protection Plan* also addresses survey guidelines to avoid impacts on bald eagles, golden eagles, and raptors, and their nests.

8.20.6 Documentation

If the Matrix process is used, compliance with the FWCA, BGEPA, and the MBTA is documented on the Overview of Effects and Required Conservation Conditions form. Once the Matrix is approved by the NDOT PQS and, if necessary, by USFWS and NGPC, the PQS summarizes the compliance in a memo.

If a survey is needed for migratory bird nests or for bald eagle, golden eagle, or other raptors' nests or roosts, NDOT's *Avian Protection Plan* contains the survey report protocols and forms. All surveys should be properly documented.

Documentation of compliance with the FWCA, BGEPA, and the MBTA is required for all classes of action: CEs, EAs, and EISs. The CE incorporates the information summarized in the PQS memo. EAs and EISs will have a summary of all of the species that may occur in the study area, a description of potential effects on those species, and a discussion of actions that NDOT would implement to avoid, minimize, and mitigate impacts, including any BMPs.

8.20.7 Laws, Regulations, and Guidance

Laws, regulations, and guidance pertaining to fish, wildlife, and vegetation resources include, but are not limited to, the following:

- 50 CFR 22, Eagle Permits
- 16 USC 661–666, Fish and Wildlife Coordination Act of 1934
- 16 USC 668–668d, Bald and Golden Eagle Protection Act of 1940
- 16 USC 703–712, Migratory Bird Treaty Act of 1918
- 16 USC 1531–1544, Endangered Species Act of 1973
- EO 12962, Recreational Fisheries (60 FR 30769 [1995]), as amended by EO 13474, Amendments to Executive Order 12962 (73 FR 57229 [2008])
- EO 13112, Invasive Species (64 FR 6183 [1999])
- EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (66 FR 3853 [2001])
- FHWA, August 10, 1999, *Roadside Use of Native Plants: Federal Highway Administration Guidance on Invasive Species*

- FHWA, USFWS, NDOT, and NGPC, March 2023, *Programmatic Agreement among the Federal Highway Administration, US Fish and Wildlife Service, Nebraska Department of Transportation, and Nebraska Game and Parks Commission for the Determination of Effects to State and Federally Listed Species from the Federal-Aid Highway Program*, as amended
- NDOT, December 9, 2014, *Bald Eagle Fact Sheet*
- NDOT, December 9, 2014, *Golden Eagle Fact Sheet*
- NDOT, June 12, 2018, *Avian Protection Plan*
- NDOT, 2024, *NDOT Roadside Vegetation Establishment and Management*
- Neb. Rev. Stat. Section 37-801 to Section 37-811, Nebraska Nongame and Endangered Species Conservation Act of 1975
- USFWS, October 1, 2018, *Bald Eagle Permit for Non-Purposeful Take*

8.21 Threatened and Endangered Species

The ESA, Section 7, requires that federal agencies consult with USFWS on any action that is likely to adversely affect or jeopardize the continued existence of any protected plant or animal species, or result in the destruction or adverse modification of critical habitat. The USFWS *Endangered Species Consultation Handbook* (March 1998) provides guidance on the Section 7 consultation process. All federally funded projects must be coordinated with USFWS. USFWS coordination requirements related to the FWCA, BGEPA, and the MBTA are discussed in Section 8.20, Fish, Wildlife, and Vegetation.

In Nebraska, threatened and endangered species, as well as those proposed for listing (referred to as candidate species), are also managed under the authority of NESCA. State agencies shall use their authorities to carry out programs for the conservation of listed species, and shall ensure that any action authorized, funded, or implemented by the agency is not likely to (1) adversely affect listed species or (2) jeopardize the continued existence of listed or proposed species. All federally listed species in Nebraska are also state-listed, but not all state-listed species in Nebraska are federally listed.

The process to review threatened and endangered species varies based on a few factors. USFWS, NDOT, and NGPC, in an effort to programmatically address compliance for federally funded transportation projects, developed the *Nebraska Biological Evaluation Process for the Federal-Aid Transportation Program*, as amended, commonly referred to as the Matrix. In addition, the parties entered into a *Programmatic Agreement among the Federal Highway Administration, US Fish and Wildlife Service, Nebraska Department of Transportation, and Nebraska Game and Parks Commission for the Determination of Effects to State and Federally Listed Species from the Federal-Aid Highway Program* (March 2023), as amended. While the Matrix process can be used for most of NDOT's projects, there is one exception: new roadways on new alignments or new traffic interchanges that would open new areas for development. Typically, projects for new roadways on new alignments or new traffic interchanges that would open new areas for development would require an EA or EIS.

For projects that occur along the South Platte, North Platte, and Platte River basins upstream of the Loup River confluence in Nebraska, the ESA consultation must also include a review of the potential effects of project-related depletions to surface water supplies in those basins (USFWS 2021). These projects require a federal action (for example, a CWA Section 404 permit) or involve federal funds, or both.

8.21.1 Study Area

The study area for threatened and endangered species is referred to as the Action Area and is defined by regulation to mean all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The Action Area for a project should be defined based on the project activities and the potential geographic impacts on the species. NDOT's standard Action Area that encompasses the greatest likely extent of effects is 1.1 miles on either side of the project alignment. If the project requires a detour, the Action Area should include the detour with a 1.1-mile-wide buffer on either side of the alignment. The Action Area should also include temporary construction easements and any designated waste, staging, stockpile, or material sites, if known. The Action Area can be modified using the process outlined in the Matrix process.

8.21.2 Resource Identification

Protected species and critical habitat are identified differently depending on whether the Matrix process is used.

8.21.2.1 Matrix Process

Under the Matrix process, species are identified using NGPC and USFWS range maps and Nebraska Natural Heritage Program database records within 5 miles and 1 mile of the project in the last 30 years. For species where NGPC and USFWS ranges differ, the species is carried forward for analysis if the project Action Area is within either range. In addition, NDOT personnel can access the Nebraska Natural Heritage Program database, which has specific known locations of listed species, to determine their proximity to the project.[8] Habitat can be identified during wetland delineation fieldwork or during any other site visit. All resource identification is documented on the Species Evaluation Parameters (SEP) form. Species with species-specific programmatic biological opinions, such as American burying beetle and northern long-eared bat, are identified on the SEP form, but impacts are analyzed outside of the standard Matrix process through those species-specific programmatic biological opinions.

8.21.2.2 State-Funds-Only Projects

NGPC requires an environmental review for impacts on endangered and threatened species for any project using state funds. Though the Matrix includes a process for state-funded projects, NDOT may opt to use the NGPC Conservation and Environmental Review Tool (CERT) for any project that is solely funded with state funds. The CERT is NGPC's preferred consultation process for NDOT state-funds-only projects. The CERT is an interactive GIS mapping tool for environmental review purposes that analyzes the project type and location. Based on the resulting analysis, the CERT generates information about potential impacts on listed species, habitat questions, and/or conservation conditions to be applied to the project. The CERT is a tool that aids in the environmental review process by assessing potential impacts on listed species. It also provides information on biological diversity, protected lands, and other resources, which is crucial for natural resource planning. Within either process (Matrix or CERT), species may be identified using the NGPC and USFWS range maps, county lists provided by USFWS and NGPC and the Nebraska Natural Heritage Program database records within 5 miles and 1 mile of the project in the last 30 years and the Nebraska Natural Heritage

[8] If a consultant is performing the biological evaluation, NDOT provides to the consultant the Species Evaluation Parameters (SEP) form with Nebraska Natural Heritage Program records for within 5 miles and 1 mile of the project. If NDOT is the designer, NDOT also provides to the consultant the project description and the activity checklist.

Program range maps. A habitat description should be prepared, and results of any habitat or species surveys should be summarized.

8.21.2.3 Projects Not Covered by Matrix Process

For a project not covered by the Matrix process, species may still be identified using NGPC and USFWS range maps, the Nebraska Natural Heritage Program database records within 5 miles and 1 mile of the project in the last 30 years. A habitat description should be prepared, and results of any habitat or species surveys should be summarized.

8.21.3 Analysis

If threatened and endangered species are identified in the Action Area, those species are analyzed as described in the following sections based on whether the Matrix process is used. Analyses of indirect effects and cumulative impacts are required only for those species found within 1 mile of the project in the last 30 years.

8.21.3.1 Matrix Process

The species that are identified as potentially affected on the SEP form (that is, receive a "Yes" in the Habitat Evaluation section) are carried forward to the Federal or State Species Matrix. The project activities then trigger a finding of No Effect (NE); May Affect, Not Likely to Adversely Affect with Conservation Condition (NLAA CC); or May Affect (MA). A project with NE effect determinations for all species is determined to have No Effect on all listed species and their habitats. An NDOT PQS signs the package, and no further agency coordination is needed.

For projects with NLAA CC effect determinations, specific conservation conditions will be implemented by NDOT and its contractors before, during, and/or after project construction. If the conservation conditions are able to be implemented as is, the NDOT PQS signs the package, and no further agency coordination is needed. If conservation conditions must be modified, USFWS and NGPC must agree to any modifications.

For projects with MA effect determinations, an Individual Project Level Evaluation (IPLE) must be written. An IPLE often justifies how an MA effect determination can be reduced to an NLAA CC or an NE effect determination, with the implementation of conservation conditions. If an IPLE is required, USFWS and NGPC must agree to the effect determination.

If the project is likely to adversely affect one or more federally listed species, the project no longer fits under the Matrix process. See Section 8.21.3.4 for details on formal consultation.

8.21.3.2 Species-Specific Programmatic Biological Opinions

In some instances, species identified in the SEP form have species-specific programmatic biological opinions. USFWS, FHWA, FRA, and FTA have a nationwide programmatic biological opinion for the northern long-eared bat. NGPC has agreed to follow the USFWS process for projects within the USFWS-designated range. These projects are analyzed using USFWS's Information Planning and Consultation (IPaC) tool that includes a standing analysis key that identifies potential impacts and avoidance and minimization measures. NDOT, NGPC, USFWS, and FHWA are in the process of developing a programmatic biological opinion for the analysis of impacts on American burying beetle and will include avoidance and minimization measures and a mitigation framework.

8.21.3.3 State-Funds-Only Projects

For a state-funds-only project, the analysis should include an assessment of direct and indirect effects; a determination of effect; conservation conditions to be implemented; and figures that show

the project location and potential habitat locations. While Matrix documents may be used to develop the analysis, NDOT most often will use the CERT process to complete species consultation with NGPC. The CERT process requires the preparer to include the following:

1. A description of the project, including timing, area of disturbance and current land use
2. An explanation of both state and federal permits required for the project and funding sources
3. The project location; a project location map, including NDOT designated off-site areas; and preparer contact information

8.21.3.4 Projects Not Covered by Matrix Process

For a project not covered by the Matrix process, the analysis should include an assessment of direct, indirect, and cumulative effects; a determination of effect; conservation conditions to be implemented; and figures that show the project location and potential habitat locations. The documentation may include the use of an IPLE, an Individual Biological Assessment (IBA), a modified Biological Assessment (BA), or assessment in a memo format, depending on the range of the species, the proximity to known occurrences, the habitat type and quantity that would be impacted, and the effect determination(s).

If the project is likely to adversely affect one or more federally listed species, formal consultation with USFWS will be required. Consultation under NESCA must also be completed with NGPC for both state and federally listed species the project is likely to adversely affect. NDOT must prepare an IBA. The Matrix process also does not cover new roadways on new alignments or new traffic interchanges that would open new areas for development. These types of projects would also require an IBA and Section 7 consultation with USFWS and/or NESCA consultation with NGPC.

An IBA is a document prepared for the Section 7 process to determine whether or not a proposed major construction activity under the authority of a federal agency is likely to adversely affect listed species, proposed species, or designated critical habitat. The primary role of an IBA is to document an agency's conclusions and the rationale to support those conclusions regarding the effects of their proposed actions on protected resources. In addition to addressing threatened and endangered species, an IBA should describe the water sources and water uses associated with the action if there is potential for surface water depletions. The concern of USFWS over Platte River depletions extends to borrow pits that may expose groundwater, which would deplete subsurface water flow to replenish the Platte River. However, NDOT typically does not designate material source sites (commonly referred to as borrow sites) or staging areas as part of the project.[9] If these areas are designated by the project sponsor, those areas should be included in the BA. The BA must be submitted to USFWS to obtain that agency's Biological Opinion as to whether the project jeopardizes a listed species or its habitat. A Biological Opinion is a document stating the opinion of USFWS as to whether or not a federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.

8.21.4 Resource Agency Coordination

Resource agency coordination differs depending on whether the Matrix process is used, as discussed in the following sections.

[9] Material source sites and other non-designated off-site locations are currently being reviewed by the NDOT Roadside Development and Compliance Unit when the contractor sends in a request form to the Construction Division. NDOT coordinates with resources agencies as necessary, The contractor is required to implement any mitigation measures resulting from that coordination.

8.21.4.1 Matrix Process

In accordance with the Programmatic Agreement, coordination with USFWS and NGPC is needed when the Matrix identifies an MA effect determination, resulting in the creation of an IPLE; standard conservation conditions are modified when the project occurs in designated critical habitat or if the project results in the need for an IBA. NDOT often completes this coordination through an email to USFWS and NGPC.

8.21.4.2 State-Funds-Only Projects

While the Matrix outlines a coordination method with NGPC for state-funded projects, the preferred method for agency consultation is the CERT. When using the CERT for state-funds-only projects, the information submitted through the CERT should align with the requirements listed in Section 8.21.3.3, ensuring a thorough project analysis. On average, a project consultation submitted through the CERT takes approximately 30 days for review. To ensure a timely review, careful project planning is essential because reviews are conducted in the order received, and the review timeline may vary based on NGPC's workload.

While Matrix documents may be used to develop the analysis, they are not submitted to NGPC; however, they are included in the project file. Depending on the CERT analysis and the subsequent NGPC Environmental Review Report, additional consultation with NGPC may be necessary. The preparer should thoroughly review the Environmental Review Report, focusing on the "Overall Results" and "Additional Information" sections to assess NGPC's findings. If potential impacts on listed species are identified, additional agency consultation may be required.

8.21.4.3 Projects Not Covered by Matrix Process

Coordination with USFWS and NGPC may occur via email on simple projects that do not require an in-depth explanation. For more complex projects, particularly those that require an EA or EIS, more formal coordination via letter is preferred by USFWS and NGPC.

8.21.5 Avoidance, Minimization, and Mitigation

NDOT attempts to avoid potential effects on species with project timing, project design, and implementation of BMPs. The conservation conditions implemented also attempt to avoid potential effects by surveying for species presence, avoiding potential habitat, or implementing activity restrictions during key times in species' life histories. USFWS and NGPC get involved in development of unique mitigation commitments only under certain situations of MA effect determinations through informal or formal consultation.

8.21.6 Documentation

Documentation requirements are different depending on whether the Matrix process is used, as discussed in the following sections.

8.21.6.1 Matrix Process

The Matrix process always requires the following: the Overview of Effects and Required Conservation Conditions (OERCC), the SEP, and a project location figure. The Matrix form is needed if a project occurs in a species range and/or if Nebraska Natural Heritage Program database records exist within 5 miles of the project in the last 30 years (SEP form, Range and Occurrence Evaluation section), and if a yes is checked on the SEP form, Habitat Evaluation section. The IPLE form is included if an MA effect determination is triggered or the project is in American burying beetle range. If the project is in the range of the northern long-eared bat, avoidance and minimization measures identified through the

IPaC analysis are included on the OERCC. The NDOT PQS authors a BA memorandum that summarizes the effect determination; the review of the FWCA, BGEPA, and the MBTA; and the conservation conditions that must be implemented on the project.

8.21.6.2 State-Funds-Only Projects

For projects funded solely by the state, NDOT engages with NGPC through the CERT. The CERT produces an Environmental Review Report, detailing potential impacts of the project on listed species. If necessary, the CERT alerts the preparer about the need for further consultation with NGPC. The report outlines the subsequent steps for evaluating potential species impacts and may give NDOT the option to implement conservation conditions based on the findings. Alternatively, if additional consultation with NGPC is required, the report specifies this in the "Additional Information" section. Additionally, the report includes a table listing federally and state-listed species, along with Nebraska at-risk species categorized as Tier I or Tier II species.

The report will document the next steps in evaluating potential species impacts, which may allow NDOT to implement the resulting conservation conditions OR require additional consultation with NGPC. If additional consultation is needed, the report will notify the preparer in the "Additional Information" section.

For a project not covered by the Matrix process, the documentation may include the use of an IPLE, IBA, modified BA, or assessment in a memo format, depending on the range of the species, the proximity to known occurrences, the habitat type and quantity that would be impacted, and the effect determination(s).

8.21.7 Laws, Regulations, and Guidance

The following laws, regulations, and guidance pertain to threatened and endangered species:

- 50 CFR 13, General Permit Procedures
- 50 CFR 17, Endangered and Threatened Wildlife and Plants
- 50 CFR 402, Interagency Cooperation—Endangered Species Act of 1973, as amended
- 16 USC 1531–1544, Endangered Species Act of 1973
- FHWA, February 22, 2005, Memorandum regarding Endangered Species Act
- FHWA, USFWS, NDOT, and NGPC, March 2023, *Nebraska Biological Evaluation Process for the Federal-Aid Transportation Program*, as amended
- FHWA, USFWS, NDOT, and NGPC, March 2023, *Programmatic Agreement among the Federal Highway Administration, US Fish and Wildlife Service, Nebraska Department of Transportation, and Nebraska Game and Parks Commission for the Determination of Effects to State and Federally Listed Species from the Federal-Aid Highway Program*, as amended
- Neb. Rev. Stat. Section 37-801 to Section 37-811, Nebraska Nongame and Endangered Species Conservation Act of 1975
- USFWS, March 1998, *Endangered Species Consultation Handbook*
- USFWS, 2025, ESA Section 7 Consultation
- USFWS, FHWA, FRA, and FTA, February 2018, as amended, *Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat*

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